

Appendix C

Biological Goals and Objectives

C BIOLOGICAL GOALS AND OBJECTIVES

C.1 Process for Developing the Biological Goals and Objectives

This section outlines the process for drafting the Biological Goals and Objectives (BGOs) and describes how they inform the conservation strategy for the Desert Renewable Energy Conservation Plan (DRECP or Plan). The conceptual model shown in Exhibit C-1 illustrates the structure of the BGOs used during the planning process. This conceptual model articulates how Plan-wide BGOs and other information (e.g., stressors) contribute to the development of Conservation and Management Actions (CMAs) associated with Covered Activities, which are monitored for effectiveness and adapted as necessary to meet the DRECP Step-Down Biological Objectives. Terms used in Exhibit C-1 are defined in Section C.1.1.

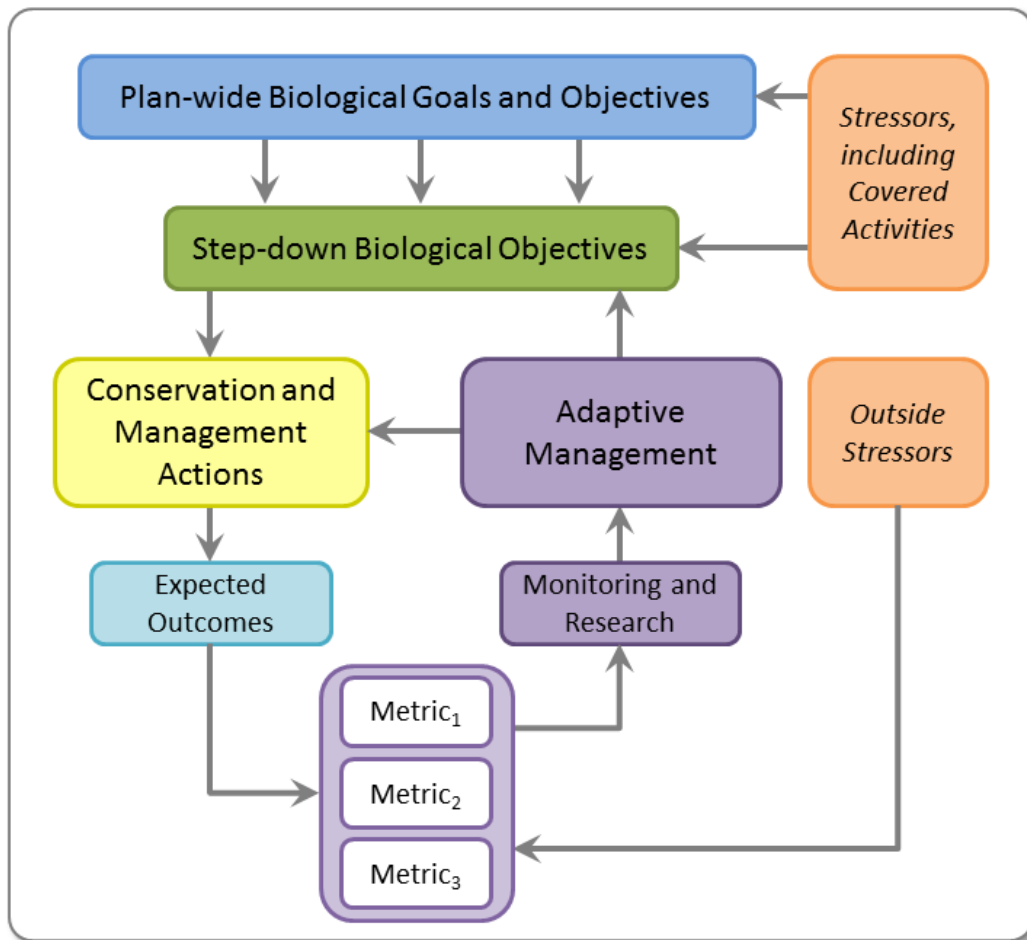


Exhibit C-1 Conceptual Model for BGOs Development

The BGOs follow the three-tiered approach based on the concepts of scale: landscape, natural community, and species. The following broad biological goals established in the DRECP Planning Agreement guided the development of the BGOs:

- Provide for the long-term conservation and management of Covered Species within the Plan Area.
- Preserve, restore, and enhance natural communities and ecosystems that support Covered Species within the Plan Area.

The following provides the approach to developing the BGOs. Section C.2 provides the landscape, natural community, and Covered Species BGOs. Specific mapping information used to develop the BGOs is provided in Section C.3. Section C.4 provides sources and additional supporting information used in developing the BGOs.

C.1.1 Definitions of Terms

The following definitions are included here to provide consistency and clarity in their usage in this discussion of BGOs; they are also included in the glossary provided with the table of contents for this document.

Conserve

The term “conserve” (or “conservation”) as used in the Plan-wide BGOs includes land acquisition (e.g., fee title purchase from willing sellers), other forms of land protection (e.g., establishing a conservation easement on lands with willing land owners), BLM LUPA conservation designations (i.e., National Landscape Conservation System [NLCS], Area of Critical Environmental Concern [ACEC], and Wildlife Allocations), restoration and enhancement activities, management actions identified for natural communities and Covered Species, and securing funding for land management and monitoring for Covered Species, natural communities and ecological processes. To conserve Covered Species and natural communities means to use, and the use of, methods and procedures within the Plan Area that are necessary to bring any Covered Species to the point at which the conservation measures are not necessary and, for Covered Species that are not listed, to maintain or enhance the condition of the species so that listing will not become necessary.

Stressors

Stressors are physical, chemical, or biological factors (or conditions) that affect Covered Species, natural communities, and/or important ecosystem processes. The precise contribution of each stressor to a species’ population may be uncertain, and there may be disagreement regarding which stressors are having the biggest effect. In many cases, stressors interact, and it may be a combination of various stressors that affect a species.

Describing the stressors (and assumptions about them) is an important step in constructing a conservation plan and in managing adaptively as the Plan is implemented. For example, clear statements regarding where a stressor occurs, which species it impacts, and certainty associated with the stressor's impact will help focus and prioritize DRECP CMAs. Some stressors may be beyond the control of the Plan (e.g., annual weather patterns). Similarly, some problems may be beyond the geographical or legal scope of the DRECP. These are referred to as "outside stressors" in the conceptual model (Exhibit C-1).

Covered Activities

Renewable energy development and transmission projects, and conservation activities as described and analyzed in the DRECP, that would be considered for incidental take permits under Section 2835 of the state Natural Community Conservation Planning Act and/or Section 10 of the federal Endangered Species Act, for otherwise lawful activities. Covered renewable energy development includes geothermal, solar thermal, photovoltaic (PV) solar, and wind development and transmission.

Biological Goals and Objectives (BGOs)

Biological goals are broad guiding principles for the biological conservation strategy of the DRECP. Biological goals are typically qualitative.

Biological objectives are biological conservation targets that articulate desired outcomes resulting from Plan implementation. Biological objectives should be measurable and quantitative.

The Step-Down Biological Objectives express how implementation of the DRECP would contribute towards meeting the Plan-wide BGOs.

Conservation Strategy

The conservation strategy is the collective term referring to the BGOs, reserve design, CMAs, Monitoring and Adaptive Management Program (MAMP), and Plan implementation.

Conservation and Management Actions

The specific set of avoidance, minimization, compensation, and additional conservation actions for biological and other resources that would be required as part of the Step-Down Biological Objectives and other resource goals and objectives through Plan implementation. The CMAs describe avoidance and minimization measures for siting, design, pre-construction, construction, maintenance, operation, and decommissioning of Covered Activities. The CMAs also describe the compensation requirements for Covered Activities that would implement conservation and management actions within the reserve.

Within BLM LUPA conservation designations (i.e., NLCS, ACEC, or Wildlife Allocation), the BLM Management Plans (see Appendix L) for each land management unit (i.e., each named NLCS, ACEC, or Wildlife Allocation area) describe the unit-specific management actions and are combined with additional CMAs that together serve as CMAs for those portions of the BLM-administered lands in the Plan Area.

Expected Outcomes

Expected outcomes are the expected results of implementing the CMAs. In order to understand the value of each action, and to assess the overall conservation strategy, the planning process included various tools and analyses to make detailed and, where possible, quantitative estimates of expected outcomes from each CMA.

Metrics

Metrics are specific attributes that will be measured to assess the performance of the CMAs and the rough proportionality between impacts and conservation measures. Several metrics may be established for each CMA. Metrics will feed into the overall monitoring program.

Monitoring and Research

Monitoring and research are implementation activities intended to evaluate performance of the conservation strategy, evaluate compliance with the plan, and develop new information and management actions that can be used to improve Plan implementation through the MAMP. Information gathered from monitoring and research will be synthesized and evaluated to assess the performance of the overall conservation strategy.

Adaptive Management

Adaptive management is a process for analyzing monitoring and research data and assessing the need to potentially adjust CMAs.

C.1.2 Information Used in Development of Biological Goals and Objectives

An understanding of the biogeographic context of the Plan Area, including the major ecological processes that maintain the habitats and associated species, status, trends, limiting factors, and stressors is essential to be able to determine the appropriate BGOs for each landscape, natural community, and Covered Species. To accomplish this, the following resources and work products were used, which are described in DRECP Chapter III.7, Biological Resources, and the Baseline Biology Report:

- Documented components of ecosystem processes and constituent habitat types
- DRECP land cover map based on the National Vegetation Classification System that provides the mapped distribution of natural communities

- Natural community descriptions
- Species profiles and occurrence data
- Factors critical to species and community conservation (e.g., ecological process-related factors, threats, and stressors)
- Existing habitat management or conservation plans for Covered Species
- Species distribution models
- Expert input

Specific mapping information used to develop the BGOs is provided in Section C.3. Additional resource-specific sources and information used to develop the BGOs are provided in Section C.4.

C.1.3 Hierarchical Structure of the Biological Goals and Objectives

The Plan-wide BGOs have a hierarchical structure that includes the landscape, natural community, and Covered Species levels.

The structural approach nests the BGOs at the Covered Species level within the natural community- and landscape-level BGOs to the extent possible. In the example of dunes, Aeolian transport processes operate at the landscape scale, and BGOs have been established to focus conservation on maintaining sand transport corridors. Without conservation of the sand transport corridors, conservation of the dune natural community and the Covered Species that depend on dunes (e.g., Mojave fringe-toed lizard [*Uma scoparia*]) would not be ensured. In many cases, the landscape- or natural community-level BGOs provide essential goals and objectives upon which the species-specific goals and objectives rely.

The following overarching landscape, natural community, and species goals guided development of the BGOs.

Overarching Landscape-Level Goal

The primary landscape level goal is to:

Create a DRECP-wide, connected, landscape-scale reserve system consisting of a mosaic of large habitat blocks of constituent natural communities that maintains ecological integrity, ecosystem function and biological diversity and that allows adaptation to changing conditions (including activities that are not covered by the Plan), and includes temperature and precipitation gradients, elevation gradients, and a diversity of geological facets to accommodate range contractions and expansions in response to climate change.

Overarching Natural Community–Level Goal

The natural community goals are directed toward promoting biodiversity and ecological function within each natural community, and to benefit covered or native species dependent on, or closely associated with, each natural community.

Overarching Species-Level Goal

The primary overarching goal for all Covered Species is to:

Protect, manage, and contribute to recovery of viable self-sustaining populations of Covered Species throughout the species' distribution in the Plan Area, including conserving sufficient habitat and resources to assist Covered Species in adapting to environmental fluctuations and to provide habitat connectivity that facilitates population movement and genetic exchange among populations.

Additionally, the overarching goal for each species is to:

Conserve sufficient habitat throughout its natural distribution within the DRECP reserve to support a viable self-sustaining population in the Plan Area.

This overarching species goal is expected to be met in part through the landscape and natural community level goals and objectives. If met, this overarching goal will ensure the DRECP provides adequate habitat conservation for each species to contribute to the recovery of Covered Species in proportion to the extent of the impact of Covered Activities on Covered Species and natural communities, as required by the Natural Community Conservation Planning Act.

C.1.4 Plan-Wide Objectives for Conservation

The Plan-wide BGOs are intended to guide and inform conservation decisions so that areas with the highest biological value are conserved and that enough of the natural community or species habitat is conserved in the right locations to provide reasonable assurances of persistence in the Plan Area with a stable or increasing population. The amount and location of habitat needed to conserve a species within the Plan Area is that which would support a population large enough to be robust and resilient to the effects of environmental, demographic, and genetic stochasticity (i.e., unpredictable variability). The population must be large enough to withstand periods of high variability and extreme environmental conditions, to include a viable balance in sex ratio and age class, and to include a full complement of genetic variability in the population. The amount of habitat is generally correlated with population size, although populations are often not evenly distributed across the landscape; therefore, the configuration of the habitat is also important to ensure adequate representation in multiple

areas throughout the species distribution in the Plan Area. The following questions were considered when developing the Plan-wide objectives for Covered Species:

1. Does the species have a narrow distribution, or is it wide-ranging?
2. What is the density distribution of the species? Locally dense narrow endemic, or colonial?
3. Is the species evenly distributed or clustered in a metapopulation structure?
4. How well does the species model reflect the assumption on density distribution? Does it overpredict or underpredict?
5. How important are known occurrences relative to the model distribution?
6. Does the species reproduce rapidly or more slowly?
7. What is the movement and dispersal ability of the species?
8. What is the species population trend in the Plan Area, and are there current significant threats and stressors?

The Plan-wide conservation objectives are typically expressed as geospatial configurations of conservation, conserved population sizes, and/or acreage conserved resource.

C.1.5 DRECP Step-Down Biological Objectives

The DRECP Step-Down Biological Objectives express how implementation of the DRECP would contribute towards meeting the Plan-wide BGOs. The Step-Down Biological Objectives describe the desired conservation and targeted conditions of implementing the DRECP and resulting contribution to meeting the Plan-wide BGOs in terms of:

- Desired conservation within Reserve Design Lands, including conservation in Existing Conservation Areas, BLM LUPA conservation designations on BLM-administered lands, and non-BLM lands added to the reserve through DRECP implementation.
- Desired avoidance and minimization that would be implemented under the DRECP conservation strategy for biological resources associated with Covered Activities.
- Monitoring and adaptive management activities that would be implemented under the DRECP conservation strategy.

Exhibit C-2 illustrates the how the Step-Down Biological Objectives are structured relative to the Plan-wide BGOs. The DRECP Step-Down Biological Objectives are described adjacent to the Plan-wide BGOs, as applicable, in Table C-1.

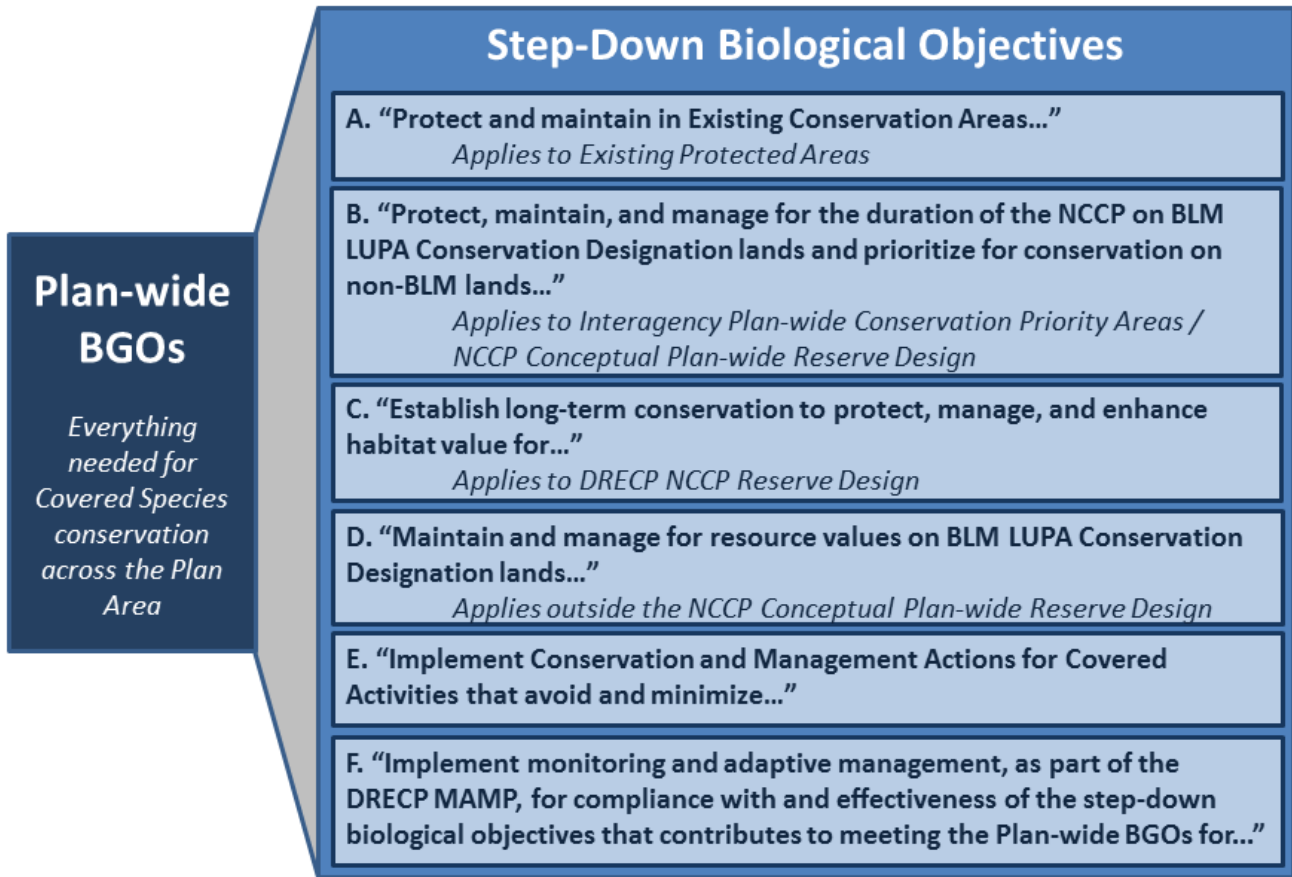


Exhibit C-2 BGOs Structure and Language

C.2 DRECP Biological Goals and Objectives

The BGOs for the DRECP are provided in Table C-1, organized by landscape BGOs, natural community BGOs, and Covered Species BGOs.

C.3 Maps Associated with the DRECP Biological Goals and Objectives

Maps associated with the BGOs for the DRECP are provided in Figures C-1 through C-39.

Table C-1
DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
Landscape Features and Habitat Connectivity	<p>Goal L1: Create a Plan-wide reserve design consisting of a mosaic of natural communities with habitat linkages that is adaptive to changing conditions and includes temperature and precipitation gradients, elevation gradients, and a diversity of geological facets that provide for movement and gene flow and accommodate range shifts and expansions in response to climate change.</p> <ul style="list-style-type: none">• Objective L1.1: Conserve Covered Species habitat, natural communities, and ecological processes of the Mojave and Sonoran deserts in each ecoregional subarea in the Plan Area in an interconnected DRECP reserve.• Objective L1.2: Design landscape linkage corridors to be 3 miles wide where feasible, and at least 1.2 miles wide¹ where a greater width is not feasible.• Establish underpasses (and land bridges if feasible) of appropriate size to allow wildlife movement through barriers such as roads and canals that exist within identified corridors. Underpasses or bridges must be designed with behavioral attributes considered, so as to avoid population sink effects and mortalities. The use of fencing, or other structures, may be essential to direct movement and dispersal towards crossing structures.• Objective L1.3: Protect and maintain the permeability of landscape connections between neighboring mountain ranges to allow passage of resident wildlife by protecting key movement corridors or reducing barriers to movement within intermountain connections, including:<ul style="list-style-type: none">◦ Chuckwalla-Little Chuckwalla-Palen connections◦ Bristol-Marble-Ship-Old Woman connections◦ Old Woman-Turtle-Whipple connections◦ Bullion-Sheephole-Coxcomb connections◦ Clark-Mesquite-Kingston connections◦ Big Maria-Little Maria-McCoy connections◦ Soda-Avawatz-Ord-Funeral connections◦ Clark-Mesquite-Kingston-Nopah-Funeral connections◦ Rosa-Vallecitos-Coyote connections◦ Panamint-Argus connection◦ Palo Verde-Mule-Little Chuckwalla connections◦ Palo Verde-Mule-McCoy connections◦ Chuckwalla-Eagle-Coxcomb connections◦ Eagle-Granite-Palen-Little Maria connections◦ Granite-Iron-Old Woman connections◦ Big Maria-Little Maria-Turtle connections◦ Northeast slope of the San Bernardino Mountains between Arrastre Creek and Furnace Canyon, including Arctic and Cushenbury canyons, Terrace and Jacoby springs, along Nelson Ridge.• Objective L1.4: Conserve unique landscape features, important landforms, and rare or unique vegetation types identified within the Plan Area, including:<ul style="list-style-type: none">◦ Desert riparian and wetland resources in the Plan Area, including riparian habitat (including microphyll woodlands associated with desert washes), desert playas, and seeps/springs◦ Areas of dense Joshua Tree woodland◦ Areas with unique geological activity (e.g., Pisgah and Amboy craters, Black Tank Wash volcanic area, Old Woman statue) and/or paleontological interest (e.g., Marble Mountains Trilobite areas)◦ Rare natural community alliances	<ul style="list-style-type: none">• Step-Down Biological Objective L1-A: Protect and maintain 7,279,000 acres of Existing Conservation Areas (<i>LLPAs and MEMLs</i>) as building blocks of the Plan-wide Reserve Design Envelope.• Step-Down Biological Objective L1-B: Within 1,589,000 acres identified as the Interagency Plan-wide Conservation Priority Area, protect, maintain, and manage the BLM LUPA conservation designation lands for the duration of the NCCP and prioritize conservation within the non-BLM lands.• Step-Down Biological Objective L1-C: Within the Interagency Plan-wide Conservation Priority Area, establish long-term conservation to protect, manage, and enhance habitat value of 377,000 acres that contributes to the DRECP NCCP Reserve Design.• Step-Down Biological Objective L1-D: Maintain and manage for resource values 3,540,000 acres of BLM LUPA conservation designation lands outside the Interagency Plan-wide Conservation Priority Area.• Step-Down Biological Objective L1-E: Implement CMAs for Covered Activities that avoid and minimize impacts to lands within the reserve.• Step-Down Biological Objective L1-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide objectives for a Plan-wide reserve design as described under Goal L1.

Table C-1
DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
Ecological Processes	<p>Goal L2: Promote ecological processes in the Plan Area that sustain natural communities and Covered Species.</p> <ul style="list-style-type: none"> • Objective L2.1: Maintain natural surface- and ground-water processes in the Plan Area, including runoff regimes, percolation, storage, and recharge that serve to maintain natural communities and Covered Species habitat, including riparian, playa, seeps/springs, and desert wash resource elements. • Objective L2.2: Maintain hydrogeomorphic processes that create habitat diversity, channel bank habitat and regeneration sites (through sediment transport, incision, and sand/silt deposition) for plants and wildlife, including single-thread channels, compound channels, and distributary networks located on alluvial fans. <ul style="list-style-type: none"> ◦ Protect or avoid streams and washes, wetlands, and seasonal wetlands in all watersheds in the Plan Area. ◦ Restore natural flow stream morphology at modified sites that are not in proper functioning condition. • Objective L2.3: Conserve floodplain groundwater recharge, input of organic matter, and sediment deposition in the floodplain. Maintain floodplain and flood terrace fluvial processes and protect natural floodplain inundation zones to the 100-year flood plain by insuring ponding or other recharge mechanisms. Include protection in target areas within the following riverine systems and drainages: <ul style="list-style-type: none"> ◦ Owens River ◦ Alamo River ◦ New River ◦ Vallecito Creek ◦ Carrizo Creek ◦ San Felipe Creek ◦ Big Rock Creek ◦ Amargosa River ◦ Lower Colorado River ◦ Little Rock Creek ◦ Mojave River (including Mojave River Fork Regional Park, Mojave Narrows Regional Park, George Air Force Base to Hinkley Road, and Barstow to Afton Canyon) • Objective L2.4: Conserve undeveloped and natural areas within the watersheds of important riverine and drainage systems in a reserve, including: <ul style="list-style-type: none"> ◦ Owens watershed (Owens River) ◦ Amargosa watershed (Amargosa River) ◦ Mojave watershed (Mojave River) ◦ Colorado watershed (Lower Colorado River) ◦ Lower portion of the Anza-Borrego watershed (Vallecito, Carrizo, and San Felipe creeks) ◦ Lower portion of the Antelope watershed (Little Rock and Big Rock creeks) ◦ Salt Creek/Death Valley watershed ◦ Panamint Valley watershed • Objective L2.5: Maintain or reestablish a fire regime that supports natural communities and Covered Species, including areas where either reduced or increased fire frequency is known to cause a decline of natural communities, vegetation, or wildlife. • Objective L2.6: Prevent new infestations and, where feasible in target areas of the reserve, decrease from existing conditions invasive plant species that negatively affect natural communities and covered and native species. Target invasive plant species include tamarisk (<i>Tamarix</i> spp.), Sahara mustard 	<ul style="list-style-type: none"> • Step-Down Biological Objective L1-A: Protect and maintain ecological processes in 7,279,000 acres of Existing Conservation Areas (<i>LLPAs and MEMLs</i>). • Step-Down Biological Objective L1-B: Within 1,589,000 acres identified as the Interagency Plan-wide Conservation Priority Area, protect, maintain, and manage the ecological processes within BLM LUPA conservation designation lands for the duration of the NCCP. On non-BLM lands within the Interagency Plan-wide Conservation Priority Area, prioritize conservation in areas important to the maintenance of ecological processes. • Step-Down Biological Objective L1-C: Within the Interagency Plan-wide Conservation Priority Area, establish long-term conservation to protect, manage, and enhance the ecological processes in 377,000 acres that contributes to the DRECP NCCP reserve design. • Step-Down Biological Objective L1-D: Maintain and manage for ecological processes in 3,540,000 acres of BLM LUPA conservation designation lands outside the Interagency Plan-wide Conservation Priority Area. • Step-Down Biological Objective L1-E: Implement CMAs for Covered Activities that avoid and minimize impacts to ecological processes, including hydrological, Aeolian, and geomorphic processes. • Step-Down Biological Objective L1-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide objectives for ecological processes under Goal L2.

Table C-1
DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<p>(<i>Brassica tournefortii</i>), African mustard (<i>Malcolmia africana</i>), arundo or giant reed (<i>Arundo donax</i>), Russian thistle (<i>Salsola</i> spp.), and non-native grasses.</p> <ul style="list-style-type: none"> • Objective L2.7: Conserve the geomorphic (fluvial, alluvial, and Aeolian) processes associated with sand dune formation and the sand transport corridors between the sand dunes and their sand sources, including upland sediment source areas (usually dry lakes or ephemeral rivers, and mountainous canyons/associated alluvial fans) by limiting barriers to sand transport. • Objective L2.8: Conserve or increase protective management to prevent structures capable of obstructing sand movement, within the following target sand transport areas: <ul style="list-style-type: none"> ◦ Afton Canyon—Soda Lake—Devil’s Playground—Kelso dunes ◦ Ward— Rice – McCoy ◦ Clark’s Pass/Pinto Valley—Dale Lake dunes—Ford-Palen dunes ◦ Panamint Valley ◦ Shadow—Ivanpah—Kelso ◦ Superior—Grass ◦ Stewart—Pahrump—Mesquite ◦ Greenwater—McLain Park ◦ Bristol Trough—Cadiz dunes—Danby—Rice dunes ◦ Pinto Wash—Palen Valley – Palen Pass—Ford Dry Lake—Palo Verde Mesa (collectively the Chuckwalla Valley dune system) ◦ Death Valley—Amargosa River—Dumont dunes ◦ Fenner—Clipper ◦ Death Valley—Amargosa—Silurian ◦ Silurian—Valjean ◦ Pahrump—California 	
Landscape stressors and threats	<p>Goal L3: Reduce, relative to existing conditions, adverse impacts from human activities to natural communities and Covered Species in the Plan Area.</p> <ul style="list-style-type: none"> • Objective L3.1: Enhance natural community function and habitat quality in the Plan Area. <ul style="list-style-type: none"> ◦ Control the ingress and egress of the DRECP reserve to avoid and minimize the effects of the use of roads on Covered Species. ◦ Control the illegal dumping of trash that can introduce invasive species and foster increased populations of opportunistic predators (e.g., common raven [<i>Corvus corax</i>], coyote [<i>Canis latrans</i>], domestic dog [<i>Canis lupus familiaris</i>]) of Covered Species. ◦ Site and design development projects to maintain and promote habitat permeability for wildlife. • Objective L3.2: Prevent the potential spread of wildlife diseases that adversely affect Covered Species in the Plan Area. <ul style="list-style-type: none"> ◦ Coordinate activities with researchers to further understand the spread and prevention of wildlife diseases, including canine distemper in desert kit fox (<i>Vulpes macrotis arsipus</i>) and upper respiratory tract disease (URTD) caused by <i>Mycoplasma</i> spp. and herpes virus in desert tortoise. • Objective L3.3: Minimize adverse effects of livestock grazing on native species. 	<ul style="list-style-type: none"> • Step-Down Biological Objective L3-A: Through the DRECP planning process, establish Development Focus Areas (DFAs) for Covered Activities in locations that that would not disrupt or degrade the function of habitat linkages. • Step-Down Biological Objective L3-B: Implement CMAs for Covered Activities that avoid and minimize impacts associated with access control, trash, and subsidized predators. • Step-Down Biological Objective L3-C: Implement monitoring and adaptive management, as part of the DRECP MAMP, that increase the understanding of stressors, including disease, on Covered Species and identify appropriate adaptive management approaches for addressing these stressors.
California Forest and Woodland Natural	<i>The DRECP Plan Area includes the foothills of the San Bernardino, San Gabriel, and Tehachapi mountains that support lower elevation California forest and woodland natural communities in transition areas around the</i>	<i>Implementation of a conservation strategy that achieves the landscape-level and Covered Species-level Step-Down Biological Objectives would contribute to the Plan-wide BGOs for California forest and</i>

Table C-1
DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
<p>Communities (CFW)</p> <p>01. Californian Broadleaf Forest and Woodland (CBFW)</p> <p>02. Californian Montane Conifer Forest (CMCF)</p>	<p><i>Mojave Desert (Figure C-1 and C-2) California forest and woodland natural communities can provide habitat for Covered Species, including Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and desert bighorn sheep. California forest and woodland natural communities cover less than 1% of the Plan Area.</i></p> <p>Goal CFW1: Protect and enhance California forest and woodland natural communities (CBFW and CMCF) to promote biodiversity and ecological function and to benefit Covered Species and other native species dependent on or closely associated with California forest and woodland habitat in the Plan Area. Place conservation emphasis on locations of these natural communities where habitats and associated Covered Species are most likely to be adaptive and resilient in response to the effects of environmental change, including range shifts, contractions, expansions, local extirpation, and recolonization, as well as changes in climate, temperature, precipitation and water availability.</p> <ul style="list-style-type: none"> • Objective CFW1.1: Conserve Californian broadleaf forest and woodlands (CBFW), including the <i>Aesculus californica</i>, <i>Quercus chrysolepis</i> tree, <i>Quercus lobata</i>, and <i>Quercus wislizeni</i> alliances, in the West Mojave and Eastern Slopes subarea, including the following general areas: <ul style="list-style-type: none"> ◦ Along the eastern flanks of the Tehachapi and southern Sierra Nevada Mountain ranges ◦ Along the northern flanks of the San Bernardino and San Gabriel Mountain ranges • Objective CFW1.2: Conserve Californian montane conifer forest (CMCF), where it occurs in the West Mojave and Eastern Slopes, and Pinto Lucerne Valley and Eastern Slopes subareas, including the following general areas: <ul style="list-style-type: none"> ◦ Southern Sierra Nevada ◦ San Bernardino Mountains • Objective CFW1.3: Decrease relative to baseline conditions and prevent the spread of disease, predators, parasites, invasive competitors, and other invasive species that negatively impact Covered Species and other native species in California forest and woodland natural communities. • Objective CFW1.4: Within California forest and woodland natural communities, conserve important habitat elements such as cavity and snag nesting habitat. • Objective CFW1.5: Restore California forest and woodland natural communities to achieve stand and system vigor and health above current conditions. <p>Goal CFW2: Promote biologically diverse woodland habitats characterized by endemic or other native plant wildlife species unique to the California forest and woodland natural communities.</p> <ul style="list-style-type: none"> • Objective CFW2.1: Maintain or increase woodland stands with diverse age structures (i.e., a natural mix of adults, saplings, and seedlings); tree sizes including snags and large oaks; and a mix of dense and open canopy and sparse woodlands (i.e., savannahs) to protect old trees, to promote natural recruitment of woodlands, and to benefit Covered Species. • Objective CFW2.2: Maintain or reestablish a natural fire regime in woodlands. 	<p><i>woodland natural communities by conserving representative California forest and woodland natural communities in the Plan-wide Reserve Design Envelope.</i></p>
<p>Chaparral and Coastal Scrub Natural Communities (CCS)</p> <p>03. Californian Mesic Chaparral</p>	<p><i>The lower elevation foothill areas of the San Bernardino, San Gabriel, and Tehachapi mountains that transition to the desert floor support chaparral and coastal scrub natural communities (Figures C-3 through C-8). Chaparral and coastal scrub natural communities can provide habitat for Covered Species, including golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Parish's daisy, and Bakersfield cactus. Chaparral and coastal scrub natural communities cover less than 1% of the Plan Area.</i></p>	<p><i>Implementation of a conservation strategy that achieves the landscape-level and Covered Species-level Step-Down Biological Objectives would contribute to the Plan-wide BGOs for chaparral and coastal scrub natural communities by conserving representative chaparral and coastal scrub natural communities in the Plan-wide Reserve Design Envelope.</i></p>

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DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
(CMCH) 04. Californian Pre-Montane Chaparral (CPMC) 05. Californian Xeric Chaparral (CXCH) 06. Central and South Coastal California Seral Scrub (CSSS) 07. Central and South Coastal Californian Coastal Sage Scrub (CSCS) 08. Western Mojave and Western Sonoran Desert Borderland Chaparral (WDBC)	<p>Goal CCS1: Protect chaparral and coastal scrub natural communities (CMCH, CPMC, CXCH, CSSS, CSCS, and WDBC) to promote biodiversity and ecological function and to benefit Covered Species and other native species dependent on, or closely associated with, chaparral and coastal scrub habitats in the Plan Area. Place conservation emphasis on locations of these natural communities where habitats and associated Covered Species are most likely to be adaptive and resilient in response to the effects of environmental change, including range shifts, contractions, expansions, local extirpation, and recolonization, as well as changes in climate, temperature, precipitation, and water availability.</p> <ul style="list-style-type: none">• Objective CCS1.1: Conserve Californian mesic chaparral (CMCH), including the <i>Cercocarpus montanus</i>, <i>Prunus ilicifolia</i>, <i>Quercus berberidifolia</i>, and <i>Quercus berberidifolia</i>–<i>Adenostoma fasciculatum</i> alliances, where it occurs in the West Mojave and Eastern Slopes, and Pinto Lucerne Valley and Eastern Slopes subareas, including the following general areas:<ul style="list-style-type: none">◦ West Mojave◦ Tehachapi Canyon area• Objective CCS1.2: Conserve Californian pre-montane chaparral (CPMC), including the <i>Arctostaphylos glandulosa</i> alliance, where it occurs in the Tehachapi Mountains of the West Mojave and Eastern Slopes subarea.• Objective CCS1.3: Conserve Californian xeric chaparral (CXCH), including the <i>Adenostoma fasciculatum</i>, <i>Arctostaphylos glauca</i>, <i>Ceanothus crassifolius</i>, and <i>Fremontodendron californicum</i> alliances, in the following general areas:<ul style="list-style-type: none">◦ Southern and western portions of the West Mojave and Eastern Slopes subarea◦ Pinto Lucerne Valley and Eastern Slopes subarea, primarily in the San Bernardino Mountains• Objective CCS1.4: Conserve Central and South Coastal California seral scrub (CSSS), including the <i>Ericameria linearifolia</i> and <i>Eriodictyon (crassifolium, trichocalyx)</i> alliances, where it occurs in the West Mojave and Eastern Slopes subarea.• Objective CCS1.5: Conserve Central and South Coastal Californian coastal sage scrub (CSCS), including the <i>Eriogonum fasciculatum</i> and <i>Eriogonum wrightii</i> alliances, where it occurs in the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes, Panamint Death Valley, and Mojave and Silurian Valley subareas, including the following general areas:<ul style="list-style-type: none">◦ Foothills of the Tehachapi Mountains◦ Foothills of the San Gabriel Mountains◦ Granite Mountains area◦ Mojave and Silurian Valley• Objective CCS1.6: Conserve Western Mojave and Western Sonoran desert borderland chaparral (WDBC), including the <i>Quercus cornelius-mulleri</i> and <i>Quercus john-tuckeri</i> alliances, where it occurs in the West Mojave and Eastern Slopes, and Pinto Lucerne Valley and Eastern Slopes subareas, including the following general areas:<ul style="list-style-type: none">◦ The Horse Canyon and Baldy Mesa area along the southern boundary of the Plan Area◦ Joshua Tree National Monument• Objective CCS1.7: Restore chaparral and coastal scrub natural communities in the Plan Area to achieve stand and system vigor and health above current conditions.• Objective CCS1.8: Increase the quality and extent of the native species of chaparral and coastal scrub natural communities by promoting historical fire frequency to create habitat suitable for Covered Species.	

Table C-1
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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
Desert Conifer Woodland Natural Community (DCW) 09. Great Basin Pinyon–Juniper Woodland (GPJW)	<p><i>The foothill areas of the San Bernardino, San Gabriel, and Tehachapi mountains and higher elevation mountains in the Mojave Desert support the desert conifer woodland natural community (Figure C-9). The desert conifer woodland natural community can provide habitat for Covered Species, including Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend’s big-eared bat, and desert bighorn sheep. The desert conifer woodland natural community covers more than 1% of the Plan Area.</i></p> <p>Goal DCW1: Protect the desert conifer woodland natural community (GPJW) to promote biodiversity and ecological function and to benefit Covered Species and other native species dependent on or closely associated with desert conifer woodland habitats in the Plan Area. Place conservation emphasis on locations of this natural community where habitats and associated Covered Species are most likely to be adaptive and resilient in response to the effects of environmental change, including range shifts, contractions, expansions, local extirpation, and recolonization, as well as changes in climate, temperature, precipitation, and water availability.</p> <ul style="list-style-type: none">• Objective DCW1.1: Conserve Great Basin pinyon–juniper woodland (GPJW), including the <i>Cercocarpus ledifolius</i>, <i>Juniperus californica</i> and <i>Pinus monophylla</i> alliances, where it occurs in the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes, Owens River Valley, Panamint Death Valley, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas including the following general areas:<ul style="list-style-type: none">◦ Eastern Mojave mountain ranges, including the Kingston Range, Clark Mountain Range, Nopah Range, Funeral Mountains, New York Mountains, Providence Mountains, and Granite Mountains◦ Along the northern and eastern flanks of the San Bernardino Mountain and northern flank of San Gabriel Mountain ranges◦ Along the eastern flanks of the Tehachapi and southern Sierra Nevada Mountain ranges• Objective DCW1.2: Increase the quality and extent of the desert conifer woodland natural community to create habitat suitable for Covered Species.• Objective DCW1.3: Decrease relative to baseline conditions and prevent the spread of disease, predators, parasites, invasive competitors, and other invasive species that negatively impact covered and other native species in target areas of GPJW. <p>Goal DCW2: Promote biologically diverse woodland habitats characterized by endemic or other native plant wildlife species unique to the desert conifer woodlands.</p> <ul style="list-style-type: none">• Objective DCW2.1: Maintain or reestablish through wildfire management a natural fire regime in GPJW.	<p><i>Implementation of a conservation strategy that achieves the landscape-level and Covered Species-level Step-Down Biological Objectives would contribute to the Plan-wide BGOs for desert conifer woodland natural communities by conserving representative desert conifer woodland natural communities in the Plan-wide Reserve Design Envelope.</i></p>
Desert Outcrop and Badlands Natural Community (DOB) 10. North American Warm Desert Bedrock Cliff and Outcrop (NBCO)	<p><i>The desert outcrop and badlands natural community intermix with desert scrub natural communities throughout the Mojave and Sonoran desert regions of the Plan Area (Figure C-10). Desert outcrop and badlands natural communities can provide habitat for Covered Species, including golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend’s big-eared bat, desert bighorn sheep, and Covered Species associated with desert scrub natural communities. The desert outcrop and badlands natural community covers more than 8% of the Plan Area.</i></p> <p>Goal DOB1: Protect the desert outcrop and badlands natural communities to promote biodiversity and ecological function and to benefit Covered Species and other native species dependent on or closely associated with desert outcrop and badlands habitats in the Plan Area. Place conservation emphasis on locations of this natural community where habitats and associated Covered Species are most likely to be</p>	<p><i>Implementation of a conservation strategy that achieves the landscape-level and Covered Species-level Step-Down Biological Objectives would contribute to the Plan-wide BGOs for desert outcrop and badlands natural communities by conserving representative desert outcrop and badlands natural communities in the Plan-wide Reserve Design Envelope.</i></p>

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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<p>adaptive and resilient in response to the effects of environmental change, including range shifts, contractions, expansions, local extirpation, and recolonization, as well as changes in climate, temperature, precipitation, and water availability.</p> <ul style="list-style-type: none">• Objective DOB1.1: Conserve North America warm desert bedrock cliff and outcrop (NBCO), including the <i>Atriplex hymenelytra</i>, <i>Caesalpinia virgata</i>, <i>Chorizanthe rigida</i>–<i>Geraea canescens</i>, and <i>Peucephyllum schottii</i> alliances, where it occurs in the Owens River Valley, Panamint Death Valley, Mojave and Silurian Valley, Kingston and Funeral Mountains, Providence and Bullion Mountains, Pinto Lucerne Valley and Eastern Slopes, Piute Valley and Sacramento Mountains, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley ecoregion subareas.	
<p>Desert Scrub Natural Communities (DSC)</p> <p>11. Arizonian Upland Sonoran Desert Scrub (ASDS)</p> <p>12. Intermontane Deep or Well-Drained Soil Scrub (IDSS)</p> <p>13. Intermontane Seral Shrubland (IMSS)</p> <p>14. Intermountain Dry Shrubland and Grassland (IDSG)</p> <p>15. Intermountain Mountain Big Sagebrush Shrubland and Steppe (IMBS)</p> <p>16. Lower Bajada and Fan Mojavean–Sonoran Desert Scrub (LBFS)</p>	<p><i>Desert scrub natural communities are the most prevalent in the Plan Area and occur in every ecoregion subarea across both the Mojave and Sonoran deserts (Figures C-11 through C-19). Desert scrub natural communities can provide habitat for Covered Species, including golden eagle, California condor, Bendire’s thrasher, burrowing owl, pallid bat, California leaf-nosed bat, Townsend’s big-eared bat, Mohave ground squirrel, desert bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali Mariposa-lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. Desert scrub natural communities cover more than 70% of the Plan Area.</i></p> <p>Goal DSC1: Protect desert scrub natural communities to promote biodiversity and ecological function and to benefit Covered Species and other native species dependent on or closely associated with desert scrub habitats in the Plan Area. Place conservation emphasis on locations of these natural communities where habitats and associated Covered Species are most likely to be adaptive and resilient in response to the effects of environmental change, including range shifts, contractions, expansions, local extirpation, and recolonization, as well as changes in climate, temperature, precipitation, and water availability.</p> <ul style="list-style-type: none">• Objective DSC1.1: Conserve Arizonian upland Sonoran Desert scrub (ASDS), including the <i>Agave deserti</i>, <i>Tetracoccus hallii</i>, and <i>Viguiera parishii</i> alliances, where it occurs in the following general areas:<ul style="list-style-type: none">◦ The southern portion of the Pinto Lucerne Valley and Eastern Slopes Subarea in the Joshua Tree National Monument area◦ The western portion of the Imperial Borrego Valley ecoregion subarea, especially in the vicinity of Anza-Borrego Desert State Park and east of the Jacumba Mountains• Objective DSC1.2: Conserve intermontane deep or well-drained soil scrub (IDSS), including the <i>Ephedra nevadensis</i>, <i>Ephedra viridis</i>, <i>Ericameria teretifolia</i>, <i>Grayia spinosa</i>, <i>Krascheninnikovia lanata</i>, <i>Lycium cooperi</i>, and <i>Purshia tridentata</i> alliances, where it occurs in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes ecoregion subareas.• Objective DSC1.3: Conserve intermontane seral shrubland (IMSS), including the <i>Encelia (actoni, virginensis)</i>, <i>Ericameria cooperi</i>, <i>Ericameria nauseosa</i>, <i>Gutierrezia sarothrae</i>, and intermontane seral shrubland alliances, where it occurs in the Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes ecoregion subareas.• Objective DSC1.4: Conserve intermountain dry shrubland and grassland (IDSG), where it occurs in the West Mojave and Eastern Slopes, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes and	<p><i>Implementation of a conservation strategy that achieves the landscape-level and Covered Species-level Step-Down Biological Objectives would contribute to the Plan-wide BGOs for desert scrub natural communities by conserving representative desert scrub natural communities in the Plan-wide Reserve Design Envelope.</i></p>

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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
17. Mojave and Great Basin Upper Bajada and Toeslope (MGUT) 18. Shadscale–Saltbush Cool Semi-Desert Scrub (SSCS) 19. Southern Great Basin Semi-Desert Grassland (SGSG)	<p>Providence and Bullion Mountains subareas, in the following general areas:</p> <ul style="list-style-type: none">○ From the Tehachapi Mountains north along the western edge of the Plan Area through the southern Sierra Nevada○ The foothills of the San Bernardino Mountains○ Old Woman Mountains area <p>• Objective DSC1.5: Conserve intermountain mountain big sagebrush shrubland and steppe (IMBS), including the <i>Artemisia tridentata</i> alliance, where it occurs in the West Mojave and Eastern Slopes, Owens River Valley, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas, including the following general areas:</p> <ul style="list-style-type: none">○ The Tehachapi Mountains○ The Owens River Valley <p>• Objective DSC1.6: Conserve lower bajada and fan Mojavean–Sonoran desert scrub (LBFS), including the <i>Ambrosia dumosa</i>, <i>Atriplex polycarpa</i>, <i>Cylindropuntia bigelovii</i>, <i>Encelia farinosa</i>, <i>Fouquieria splendens</i>, <i>Larrea tridentata</i>, <i>Larrea tridentata</i>–<i>Ambrosia dumosa</i>, and <i>Larrea tridentata</i>–<i>Encelia</i> alliances, where it occurs in all subarea in the Plan Area.</p> <p>• Objective DSC1.7: Conserve Mojave and Great Basin upper bajada and toeslope (MGUT), including the <i>Coleogyne ramosissima</i>, <i>Menodora spinescens</i>, <i>Salazaria Mexicana</i>, <i>Yucca brevifolia</i>, and <i>Yucca schidigera</i> alliances, in the West Mojave and Eastern Slopes, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Mojave and Silurian Valley, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas.</p> <p>• Objective DSC1.8: Conserve shadscale–saltbush cool semi-desert scrub (SSCS), including the <i>Atriplex canescens</i> and <i>Atriplex confertifolia</i> alliances, where it occurs in the West Mojave and Eastern Slopes, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Mojave and Silurian Valley, Kingston and Funeral Mountains, Providence and Bullion Mountains, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley ecoregion subareas, including the following general areas:</p> <ul style="list-style-type: none">○ The area north of Lancaster around Rosamond Lake and Rodgers Lake○ East and south of Silver Lake○ Between the Salton Sea and the Chocolate Mountains○ Chuckwalla Valley○ Owens Valley <p>• Objective DSC1.9: Conserve southern Great Basin semi-desert grassland (SGSG), including the <i>Achnatherum speciosum</i> alliance, where it occurs in the West Mojave and Eastern Slopes and Mojave and Silurian Valley subareas, including the following areas:</p> <ul style="list-style-type: none">○ The Superior Valley○ Southeast of Twin Buttes○ Northeast of Tehachapi <p>• Objective DSC1.10: Restore desert scrub natural communities within the Plan Area to achieve stand and system vigor and health above current conditions.</p> <p>• Objective DSC1.11: Increase the quality and extent of the native species of desert scrub natural communities by promoting historical fire frequency to create habitat suitable for Covered Species.</p>	
Dune Natural	<i>The dune and sand-based natural community occurs in deposition zones and sand transport corridors throughout the Mojave and Sonoran desert regions of the Plan Area (Figure C-20). Dune and sand-based</i>	<i>Implementation of a conservation strategy that achieves the landscape-level and Covered Species-level Step-Down Biological Objectives would contribute to the Plan-wide BGOs for dune natural communities</i>

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Community (DUN) 20. North American Warm Desert Dunes and Sand Flats (SAND)	<p><i>natural communities can provide habitat for Covered Species, including flat-tailed horned lizard, Mojave fringe-toed lizard, pallid bat, California leaf-nosed bat, and Townsend’s big-eared bat. The dune and sand-based natural community covers nearly 2% of the Plan Area.</i></p> <p>Goal DUN1: Protect the dune and sand-based natural community to promote biodiversity and ecological function and to benefit Covered Species and other native species dependent on or closely associated with dunes and sand habitats in the Plan Area. Place conservation emphasis on locations of this natural community where habitats and associated Covered Species are most likely to be adaptive and resilient in response to the effects of environmental change, including range shifts, contractions, expansions, local extirpation, and recolonization, as well as changes in climate, temperature, precipitation, and water availability.</p> <ul style="list-style-type: none">• Objective DUN1.1: Conserve North American warm desert dunes and sand flats, including the <i>Achnatherum hymenoides</i>, <i>Pleuraphis rigida</i>, <i>Dicoria canescens</i>–<i>Abronia villosa</i>, <i>Swallenia alexandrae</i>, <i>Panicum urvilleanum</i>, <i>Psorothamnus polydenius</i>, <i>Wislizenia refracta</i>, and <i>Prosopis glandulosa</i> alliances, and the extant sand sources and sediment deposition zones in the Plan Area by maintaining, restoring, and enhancing the fluvial/alluvial sedimentary processes and Aeolian (wind-driven) transport corridors needed to maintain sand dune formation and the areal extent of the existing dune complexes, including the following dune complexes and unnamed sand systems:<ul style="list-style-type: none">○ Olancho dunes○ Death Valley (Mesquite) dunes○ Dumont dunes (non-off highway vehicle [OHV] portion)○ Cadiz dunes○ East Mesa sand fields○ Danby dunes○ Means dunes○ Rice Valley dunes○ Ballarat dunes○ San Felipe Creek dunes○ Panamint dunes○ Ibex–Saratoga dunes○ Kelso dunes○ Chuckwalla/Palen/Ford Dry Lake/Blythe dunes○ Pinto Wash dunes○ Little Dumont dunes○ Cady Mountains dunes○ Newberry Springs complex○ Borrego Sink dunes• Objective DUN1.2: Restore, maintain, or enhance Covered Species habitat and ecological health of the dune and sand-based natural community, including transitional areas encompassing the full array of sand-related and transitional community types in the Plan Area. <p>Goal DUN2: Remove or reduce potential threats and environmental stressors to maintain and enhance natural communities, rare alliances, and populations of Covered Species through conservation strategies and</p>	<p><i>by conserving representative dune natural communities in the Plan-wide Reserve Design Envelope.</i></p>

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	<p>monitoring and adaptive management actions, with particular emphasis in areas that are most likely to be adaptive and resilient in response to the effects of environmental change (e.g., climate, temperature, and precipitation), including range shifts, contractions, expansions, local extirpation, and recolonization.</p> <ul style="list-style-type: none"> • Objective DUN2.1: Coordinate with various interests, including non-signatory agencies with regulatory jurisdiction and other organizations, in establishing cooperative partnerships to better protect against various stressors and threats, including groundwater depletion within basins that support the honey mesquite coppice dune alliance. • Objective DUN2.2: Acquire knowledge needed to detect adverse ecological trends and potential limiting factors to maintain the ecological health of the dune and sand-based natural community and Covered Species, including but not limited to the spread of invasive non-native species. 	
<p>Grassland Natural Communities (GRS)</p> <p>21. California Annual and Perennial Grassland (CAPG)</p> <p>22. California Annual Forb/Grass Vegetation (CAFG)</p>	<p><i>Grassland natural communities occur primarily in the western portion of the Plan Area predominantly in the Antelope Valley area (Figure C-21 and C-22). Grassland natural communities can provide habitat for Covered Species, including golden eagle, burrowing owl, mountain plover, and Bendire’s thrasher. Grassland natural communities cover more than 1% of the Plan Area.</i></p> <p>Goal GRS1: Protect grassland natural communities to promote biodiversity and ecological function and to benefit Covered Species and other native species dependent on or closely associated with grassland habitats in the Plan Area. Place conservation emphasis on locations of these natural communities where habitats and associated Covered Species are most likely to be adaptive and resilient in response to the effects of environmental change, including range shifts, contractions, expansions, local extirpation, and recolonization, as well as changes in climate, temperature, precipitation, and water availability.</p> <ul style="list-style-type: none"> • Objective GRS1.1: Conserve California annual and perennial grassland (CAPG) where it occurs in the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes, Mojave and Silurian Valley, and the Imperial Borrego Valley ecoregion subareas, including the following general areas: <ul style="list-style-type: none"> ○ Along the western edge of the Plan Area from the Tehachapi–Piute Mountains in Kern County south to the San Gorgonio Mountains in San Bernardino County. ○ Along the western Plan Area boundary near Borrego Springs and farther south at Anza-Borrego Desert State Park. • Objective GRS1.2: Conserve California annual forb/grass vegetation (CAFG) where it occurs in the West Mojave and Eastern Slopes, and Mojave and Silurian Valley subareas, including the following general areas: <ul style="list-style-type: none"> ○ Antelope Valley area ○ Superior Valley area • Objective GRS1.3: Restore grassland natural communities in the Plan Area to achieve stand and system vigor and health above current conditions. <ul style="list-style-type: none"> ○ Maintain native perennial grasses, reduce non-native grasses, and promote historical fire frequency to create habitat suitable for target species. ○ Reduce the threat of invasive competitors and nonnative predators (or reduce conditions that subsidize native predators) that negatively impact covered and other native species in target grassland areas. ○ Increase the number of underground burrows in target grassland areas by promoting burrowing rodents and maintaining soil conditions suitable for burrows. 	<p><i>Implementation of a conservation strategy that achieves the landscape-level and Covered Species-level Step-Down Biological Objectives would contribute to the Plan-wide BGOs for grassland natural communities by conserving representative grassland natural communities in the Plan-wide Reserve Design Envelope.</i></p>
Riparian Natural Communities (RIP)	<p><i>Riparian natural communities occur throughout the Plan Area associated with riverine systems and drainages, desert washes, and other distributary networks (Figure C-23 through C-27). Riparian natural</i></p>	<p><i>Implementation of a conservation strategy that achieves the landscape-level and Covered Species-level Step-Down Biological Objectives would contribute to the Plan-wide BGOs for riparian natural</i></p>

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<p>23. Madrean Warm Semi-Desert Wash Woodland/Scrub (MAWW)</p> <p>24. Mojavean Semi-Desert Wash Scrub (MOWS)</p> <p>25. Sonoran-Coloradan Semi-Desert Wash Woodland/Scrub (SCOWS)</p> <p>26. Southwestern North American Riparian Evergreen and Deciduous Woodland (SNRED)</p> <p>27. Southwestern North American Riparian Wash Scrub (SNAW)</p>	<p><i>communities can provide habitat for Covered Species, including Tehachapi slender salamander, California black rail, Gila woodpecker, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, Yuma clapper rail, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and Covered Species associated with desert scrub natural communities (in MAWW, MOWS, and SCOWS). Riparian natural communities cover more than 5% of the Plan Area.</i></p> <p>Goal RIP1: Conserve, maintain, restore and enhance riparian natural communities in the Plan Area. Place conservation emphasis on locations of these natural communities where habitats and associated Covered Species are most likely to be adaptive and resilient in response to the effects of environmental change, including range shifts, contractions, expansions, local extirpation, and recolonization, as well as changes in climate, temperature, precipitation, and water availability (in run-off, in streams and in groundwater).</p> <ul style="list-style-type: none"> • Objective RIP1.1: Conserve Madrean warm semi-desert wash woodland/scrub (MAWW) where it occurs in all ecoregion subareas in the Plan Area. • Objective RIP1.2: Conserve Mojavean semi-desert wash scrub (MOWS) where it occurs in all ecoregion subareas (except the Owens River Valley ecoregion subarea). • Objective RIP1.3: Conserve Sonoran-Coloradan semi-desert wash woodland/scrub (SCOWS) where it occurs in the Panamint Death Valley, Mojave and Silurian Valley, Kingston and Funeral Mountains, Providence and Bullion Mountains, Pinto Lucerne Valley and Eastern Slopes, Piute Valley and Sacramento Mountains, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley ecoregion subareas in the Plan Area. • Objective RIP1.4: Conserve Southwestern North American riparian evergreen and deciduous woodland (SNRED) where it occurs in the Panamint Death Valley, West Mojave and Eastern Slopes, Mojave and Silurian Valley, Providence and Bullion Mountains, Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley ecoregion subareas in the Plan Area. • Objective RIP1.5: Conserve Southwestern North American riparian wash scrub (SNAW) where it occurs in all ecoregion subareas, (except the Kingston and Funeral Mountains ecoregion subarea) in the Plan Area. • Objective RIP1.6: Maintain or enhance all processes that are important to maintain or restore riparian natural communities. Where impediments are observed, restore stream process form and function. Drylands stream processes include but are not limited to: <ul style="list-style-type: none"> ○ Surface and stream flows necessary to maintain natural hydrological and geomorphological conditions ○ Groundwater recharge ○ Natural channels and tributary networks that form riparian natural communities ○ Natural streams, springs, and seeps feeding the river systems supporting riparian natural communities ○ Instream flows necessary to maintain natural hydrological and geomorphological conditions ○ Floodplain connectivity ○ Input of organic matter and sediment deposition in the floodplains <p>Goal RIP2: Protect and enhance riparian natural communities to maintain or improve habitat for Covered Species and other native species.</p> <ul style="list-style-type: none"> • Objective RIP2.1: Maintain or as appropriate increase the presence of native plant species. • Objective RIP2.2: Maintain or increase habitat for Covered Species and other species, including resident species and those that rely on riparian natural communities seasonally. • Objective RIP2.3: Conserve migration stopover and wintering sites for bird Covered Species and other migratory birds. <p>Goal RIP3: Maintain or increase Covered Species population sizes in riparian natural communities.</p>	<p><i>communities by conserving representative riparian natural communities in the Plan-wide Reserve Design Envelope.</i></p>

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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<ul style="list-style-type: none">• Objective RIP3.1: Increase productivity to higher than current levels for Covered Species and other plants and wildlife in riparian natural communities.	
Wetland Natural Communities (WET) 28. Arid West Freshwater Emergent Marsh (AWEM) 29. Californian Warm Temperate Marsh/Seep (WATS) 30. North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat (ALSH) 31. Southwestern North American Salt Basin and High Marsh (SOMA)	<p><i>Wetland natural communities occur throughout the Plan Area associated with marshes, seeps/springs, playas, and salt basins (Figure C-28 through C- 31). Wetland natural communities can provide habitat for Covered Species, including California black rail, Yuma clapper rail, California leaf-nosed Bat, Townsend’s big-eared bat, desert pupfish, Mohave tui chub, Owens pupfish, Owens tui chub, and Covered Species associated with desert scrub natural communities (in SOMA). Wetland natural communities cover nearly 5% of the Plan Area.</i></p> <p>Goal WET1: Conserve, maintain, restore, and enhance wetland natural communities in the Plan Area. Place conservation emphasis on locations of these natural communities where habitats and associated Covered Species are most likely to be adaptive and resilient in response to the effects of environmental change, including range shifts, contractions, expansions, local extirpation, and recolonization, as well as changes in climate, temperature, precipitation, and water availability (in run-off, streams, and groundwater).</p> <ul style="list-style-type: none">• Objective WET1.1: Conserve arid west freshwater emergent marsh (AWEM) where it occurs in the Panamint Death Valley, Mojave and Silurian Valley, Kingston and Funeral Mountains, Providence and Bullion Mountains, and Imperial Borrego Valley ecoregion subareas in the Plan Area.• Objective WET1.2: Conserve Californian warm temperate marsh/seep (WATS) where it occurs in the West Mojave and Eastern Slopes, and Mojave and Silurian Valley ecoregion subareas in the Plan Area.• Objective WET1.3: Conserve North American warm desert alkaline scrub and herb playa and wet flat (ALSH) where it occurs in the Panamint Death Valley, West Mojave and Eastern Slopes, Mojave and Silurian Valley, Kingston and Funeral Mountains, Providence and Bullion Mountains, Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley ecoregion subareas in the Plan Area.• Objective WET1.4: Conserve southwestern North American salt basin and high marsh (SOMA) where it occurs in all ecoregion subareas (except the Piute Valley and Sacramento Mountains) in the Plan Area.• Objective WET1.6: Maintain or enhance all processes that are important to maintain or restore wetland natural communities. Where impediments are observed, restore wetland process form and function. Wetland processes include but are not limited to:<ul style="list-style-type: none">○ Surface and stream flows necessary to maintain natural hydrological and geomorphological conditions○ Groundwater recharge○ Input of organic matter and sediment deposition○ Groundwater mineralization <p>Goal WET2: Protect and enhance wetland natural communities to maintain or improve habitat for Covered Species and other native species.</p> <ul style="list-style-type: none">• Objective WET2.1: Maintain or as appropriate increase the presence of native plant species.• Objective WET2.2: Maintain or increase habitat for Covered Species and other species, including resident species and those that rely on wetland natural communities seasonally.• Objective WET2.3: Conserve migration stopover and wintering sites for bird Covered Species and other migratory birds. <p>Goal WET3: Maintain or increase Covered Species population sizes in wetland natural communities.</p> <ul style="list-style-type: none">• Objective WET3.1: Increase productivity to higher than current levels for Covered Species and other plants and wildlife in wetland natural communities.	<p><i>Implementation of a conservation strategy that achieves the landscape-level and Covered Species-level Step-Down Biological Objectives would contribute to the Plan-wide BGOs for wetland natural communities by conserving representative wetland natural communities in the Plan-wide Reserve Design Envelope.</i></p>

Table C-1
DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
01. Agassiz's Desert Tortoise – <i>Gopherus agassizii</i> (DETO)	<p>Goal DETO1 (Tortoise Conservation Areas): Within each desert tortoise recovery unit (see Figure C-32) within the Plan Area, maintain well-distributed populations in Tortoise Conservation Areas (USFWS 2011) through a reserve system that provides sufficient contiguous size and configuration to provide long-term population viability, connectivity, growth in recovery unit population size, and increases in recovery unit distribution.</p> <ul style="list-style-type: none">• Objective DETO1.1 (Tortoise Conservation Areas): Maintain and protect all suitable, intact desert tortoise habitat² on public lands within Tortoise Conservation Areas³ and acquire strategically located inholdings and private lands adjacent to Tortoise Conservation Areas for incorporation into the reserve (see Figure C-36).• The following Tortoise Conservation Areas that overlap the DRECP Plan Area are identified by recovery unit (see Figures C-32 and C-33):<ul style="list-style-type: none">○ West Mojave Tortoise Conservation Areas<ul style="list-style-type: none">▪ Desert Tortoise Research Natural Area▪ Fremont-Kramer Area of Critical Environmental Concern and Critical Habitat Unit▪ Superior-Cronese Area of Critical Environmental Concern and Critical Habitat Unit▪ Ord-Rodman Area of Critical Environmental Concern and Critical Habitat Unit○ Colorado Desert Tortoise Conservation Areas<ul style="list-style-type: none">▪ Pinto Mountains Area of Critical Environmental Concern and Critical Habitat Unit▪ Chuckwalla Area of Critical Environmental Concern and Critical Habitat Unit▪ Chemehuevi Area of Critical Environmental Concern and Critical Habitat Unit▪ Piute Valley Area of Critical Environmental Concern and Critical Habitat Unit▪ Joshua Tree National Park○ Eastern Mojave Tortoise Conservation Areas<ul style="list-style-type: none">▪ Shadow Valley Area of Critical Environmental Concern▪ Ivanpah Valley Area of Critical Environmental Concern▪ Ivanpah Critical Habitat Unit▪ Mojave National Preserve▪ Death Valley National Park• Objective DETO1.2 (Tortoise Conservation Areas): Maintain no net loss in the quantity of conserved desert tortoise habitat within each Tortoise Conservation Area in the Plan Area in support of long-term desert tortoise population viability (Recovery Criterion 3).• Objective DETO1.3 (Tortoise Conservation Areas): Contribute to increasing rates of population change (λ) for desert tortoises (i.e., $\lambda > 1$) over at least 25 years (a single tortoise generation), as measured by extensive range-wide monitoring across Tortoise Conservation Areas within each recovery unit in the Plan Area, and by direct monitoring and estimation of vital rates (recruitment, survival) from demographic study areas within each recovery unit (Recovery Criterion 1).• Objective DETO1.4 (Tortoise Conservation Areas): Increase distribution of desert tortoises throughout each Tortoise Conservation Area in the Plan Area over at least 25 years (i.e., ψ [occupancy] > 0) (Recovery Criterion 2).• Objective DETO1.5 (Tortoise Conservation Areas): Through reserve design principles, augment Tortoise Conservation Areas, such as Ord-Rodman, with high value contiguous habitat to satisfy population viability parameters in the Recovery Plan. <p>Goal DETO2 (Desert Tortoise Linkages): Maintain functional linkages between Tortoise Conservation Areas to</p>	<ul style="list-style-type: none">• Step-Down Biological Objective DETO-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) desert tortoise habitat in the following areas:<ul style="list-style-type: none">○ BLM Wilderness Areas○ Mojave National Preserve○ Joshua Tree National Park○ Death Valley National Park○ Majority of the Superior-Cronese to Mojave National Preserve to Shadow Valley to Death Valley National Park Linkage○ Portion of the Ord-Rodman to Superior-Cronese to Mojave National Preserve Linkage○ Portion of the Joshua Tree National Park and Pinto Mountains DWMA to Chemehuevi Linkage• Step-Down Biological Objective DETO-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative areas of desert tortoise habitat in the following areas:<ul style="list-style-type: none">○ Desert Tortoise Research Natural Area○ Fremont-Kramer Desert Wildlife Management Area and Critical Habitat Unit○ Ord-Rodman Desert Wildlife Management Area and Critical Habitat Unit○ Portions of the Superior-Cronese Desert Wildlife Management Area and Critical Habitat Unit○ Portions of the Chuckwalla Desert Wildlife Management Area and Critical Habitat Unit○ Portions of intact desert tortoise habitat in the Colorado Desert○ Fremont Kramer to Ord-Rodman Linkage○ Chemehuevi to Chuckwalla Linkage○ Portions of the Ord-Rodman to Joshua Tree Linkage• Step-Down Biological Objective DETO-C: Establish long-term conservation to protect, manage, and enhance habitat value for 266,000 acres of desert tortoise habitat that contributes to the DRECP NCCP reserve design in and around the following areas: Desert Tortoise Research Natural Area, Fremont-Kramer Desert Wildlife Management Area and Critical Habitat Unit, Ord-Rodman to Joshua Tree Linkage, Fremont Kramer to Ord-Rodman Linkage, Pinto Wash Linkage, and Chemehuevi to Chuckwalla Linkage.• Step-Down Biological Objective DETO-D: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for desert tortoise in the following areas:<ul style="list-style-type: none">○ Remainder of Superior-Cronese Desert Wildlife Management Area and Critical Habitat Unit○ Ord-Rodman Desert Wildlife Management Area and Critical Habitat Unit○ Pinto Mountains Desert Wildlife Management Area and Critical Habitat Unit○ Remainder of the Chuckwalla Desert Wildlife Management Area and Critical Habitat Unit○ Chemehuevi Desert Wildlife Management Area and Critical Habitat Unit○ Piute Valley Desert Wildlife Management Area and Critical Habitat Unit○ Shadow Valley Area of Critical Environmental Concern○ Ivanpah Valley Area of Critical Environmental Concern○ Ivanpah Critical Habitat Unit○ Remainder of the Ord-Rodman to Superior-Cronese to Mojave National Preserve○ Remainder of Superior-Cronese to Mojave National Preserve to Shadow Valley to Death Valley National Park Linkage

Table C-1
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	<p>provide for long-term genetic exchange, demographic stability, and population viability within Tortoise Conservation Areas. Emphasize inclusion of high value contiguous habitats pursuant to Nussear et al. (2001) and avoidance of disturbance in habitat with high desert tortoise habitat potential (see Figure C-35).</p> <ul style="list-style-type: none"> • Objective DETO2.1a (Desert Tortoise Linkages): Protect, manage and acquire desert tortoise habitat within the following linkages (see Figure C-34) with special emphasis placed on areas of high habitat potential and areas identified as integral to the establishment and protection of a viable linkage network (see Figure C-36). Ensure the long-term connectivity of Tortoise Conservation Areas by maintaining desert tortoise habitat that is of sufficient size and contiguity for maintenance of viable populations within each linkage. <ul style="list-style-type: none"> ○ Ord-Rodman to Superior-Cronese to Mojave National Preserve ○ Superior-Cronese to Mojave National Preserve to Shadow Valley to Death Valley National Park Linkage ○ Joshua Tree National Park and Pinto Mountains Desert Wildlife Management Area (DWMA) to Chemehuevi Linkage ○ Death Valley National Park to Nevada Test Site • Objective DETO2.1b (Desert Tortoise Linkages): Protect, maintain, and acquire all remaining desert tortoise habitat within linkages already severely compromised, specifically the following (see Figure C-34): <ul style="list-style-type: none"> ○ Ivanpah Valley Linkage ○ Chemehuevi to Chuckwalla Linkage ○ Pinto Wash Linkage • Objective DETO2.1c (Desert Tortoise Linkages): Protect intact habitat (see Figure C-35) within the following linkages to enhance the population viability of the Ord-Rodman Tortoise Conservation Area. <ul style="list-style-type: none"> ○ Ord-Rodman to Joshua Tree Linkage ○ Fremont Kramer to Ord-Rodman Linkage <p>Goal DETO3 (Desert Tortoise in the Colorado Desert): Maintain desert tortoise populations and linkages in the Colorado Desert (see Figure C-35).</p> <ul style="list-style-type: none"> • Objective DETO3.1: Protect, maintain and acquire suitable intact desert tortoise habitat in the Colorado Desert. <p>Goal DETO4 (Other Intact Desert Tortoise Habitats): Protect desert tortoise in areas of intact desert tortoise habitat in the plan area but outside of the areas described in the previous goals and objectives (see Figure C-35).</p> <ul style="list-style-type: none"> • Objective DETO4.1: Minimize injury and mortality of desert tortoises in these areas of intact habitat. • Objective DETO4.2: Avoid areas found with tortoise densities greater than 10 tortoises per square mile. <p>Goal DETO5 (Climate Change): Consistent with goals and objectives in DETO1, DETO2, and DETO3 above, assemble and manage the Tortoise Conservation Area and linkage reserve system to provide for desert tortoise population and range change on the landscape in response to biophysical changes as a result of climate change, shifting vegetation communities, and desert tortoise populations.</p> <ul style="list-style-type: none"> • Objective DETO5.1: Apply output of a desert tortoise habitat model (Nussear et al. 2009) which has been validated, refined, and expanded to consider potential effects of global climate change on existing desert tortoise habitat (Recovery Action 5.1) to the identification of geo-specific climate change planning elements. • Objective DETO5.2: Use integrated modeling, monitoring, and experimentation that explore the ecological consequences of climate change on future vegetation communities within the range of the desert tortoise to identify geo-specific restoration opportunities relative to changes in vegetation communities and in the face of potential retreat of some invasive species (Recovery Action 5.2; USFWS 2011). 	<ul style="list-style-type: none"> ○ Remainder of the Joshua Tree National Park and Pinto Mountains DWMA to Chemehuevi Linkage ○ Death Valley National Park to Nevada Test Site ○ Ivanpah Valley Linkage ○ Chemehuevi to Chuckwalla Linkage ○ Pinto Wash Linkage ○ Remainder of the Ord-Rodman to Joshua Tree Linkage ○ Fremont Kramer to Ord-Rodman Linkage <ul style="list-style-type: none"> • Step-Down Biological Objective DETO-E: Implement CMAs for Covered Activities that avoid and minimize impacts to desert tortoise and desert tortoise habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term survey, translocation and siting requirements within DFAs. • Step-Down Biological Objective DETO-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for desert tortoise.

Table C-1
DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<ul style="list-style-type: none">• Objective DETO5.3: Apply the output of population models that (1) estimate habitat quantity and tortoise occupancy needed to sustain populations into the future and (2) incorporate predicted effects of climate change to the identification of geo-specific climate change planning elements (Recovery Action 5.3; USFWS 2011).	
02. Flat-Tailed Horned Lizard – <i>Phrynosoma mcallii</i> (FTHL)	<p>Goal FTHL1: Conserve and add to the existing network of Management Areas (MAs) and Research Areas (RAs) established in the flat-tailed horned lizard Rangewide Management Strategy (RMS) to maintain persistent populations of flat-tailed horned lizards that are adaptive and resilient to the effects of environmental change, including range shifts, contractions, expansions, local extirpation, and recolonization, as well as changes in climate, temperature, and precipitation.</p> <ul style="list-style-type: none">• Objective FTHL1.1: Conserve the currently established MA network consistent with the RMS (see numbered areas depicted on Figure C-37, FTHL Reserve):<ul style="list-style-type: none">◦ Borrego Badlands MA (1.1)◦ Ocotillo Wells RA (1.2)◦ West Mesa MA/ACEC (1.3)◦ Yuha Basin MA/ACEC (1.4)◦ East Mesa MA/ACEC (1.5)• Objective FTHL1.2: Consistent with BLM LUPA, expand the MA network or add new MAs to enhance viability of core populations and improve connectivity between MAs.<ul style="list-style-type: none">◦ Yuha Basin ACEC Expansion (2.1)◦ East Mesa ACEC Expansion (2.2) <p>Goal FTHL2: Make the net effect of development neutral or positive to the species by preventing the net loss of flat-tailed horned lizard habitat on BLM and California Department of Parks and Recreation lands inside or outside MAs.</p> <ul style="list-style-type: none">• Objective FTHL2.1: Implement the habitat replacement ratios stipulated in the RMS. <p>Goal FTHL3: Ensure conservation of the flat-tailed horned lizard by managing land uses and associated stressors and threats, maintaining linkages, conserving habitat quality, and maintaining the long-term persistence of self-sustaining populations through monitoring and adaptive management.</p> <ul style="list-style-type: none">• Objective FTHL3.1: Using monitoring and adaptive management, determine limiting factors on population growth and identify primary stressors and threats in flat-tailed horned lizard management areas, linkages, and contiguous habitats where populations are known or suspected to be in decline.• Objective FTHL3.2: Implement applicable mitigation measures consistent with the RMS and incorporate new information derived through the RMS to avoid and reduce mortality.	<ul style="list-style-type: none">• Step-Down Biological Objective FTHL-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) flat-tailed horned lizard habitat in the following areas:<ul style="list-style-type: none">◦ Borrego Badlands Management Area (MA)◦ Ocotillo Wells• Step-Down Biological Objective FTHL-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative flat-tailed horned lizard habitat in the following areas:<ul style="list-style-type: none">◦ West Mesa ACEC◦ Yuha Basin ACEC◦ East Mesa ACEC• Step-Down Biological Objective FTHL-C: Implement CMAs for Covered Activities that avoid and minimize impacts to flat-tailed horned lizard and flat-tailed horned lizard habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, require that Covered Activities in FTHL ACECs are implemented consistent with the flat-tailed horned lizard Rangewide Management Strategy.• Step-Down Biological Objective FTHL-D: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for flat-tailed horned lizard.
03. Mojave Fringe-Toed Lizard – <i>Uma scoparia</i> (MFTL)	<p>Goal MFTL1: Protect essential habitat for the Mojave fringe-toed lizard. The Mojave fringe-toed lizard is an obligate dune-dweller, restricted to areas of loose, wind-blown sand and sparse vegetation.</p> <ul style="list-style-type: none">• Objective MFTL1.1: Protect essential habitat within the following five known clades of Mojave fringe-toed lizard (Murphy et al. 2006): Amargosa River, Bouse-Rice, Palen-Dale, Cadiz-Amboy, and Mojave River Sink. The Amargosa River clade has the greatest amount of genetic divergence compared to the other four clades.• Objective MFTL1.2: Within each clade, conserve and avoid essential habitat within each major dune system. To ensure that populations are well distributed, essential habitat will be delineated for every major dune system within each clade. <p>Goal MFTL2: Protect the ecological processes needed to maintain essential habitat. Dunes are dynamic systems and are dependent on local wind regimes (i.e., prevailing wind directions and speeds). Dunes can be</p>	<ul style="list-style-type: none">• Step-Down Biological Objective MFTL-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) all potential Mojave fringe-toed lizard habitat in the following areas:<ul style="list-style-type: none">◦ Pinto Basin◦ Ibex Dunes◦ Kelso Dunes and Dry Lake• Step-Down Biological Objective MFTL-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative Mojave fringe-toed lizard habitat in the following areas:<ul style="list-style-type: none">◦ Portion of the Palen Ford complex

Table C-1
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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<p>depleted if sand sources and sand transport corridors are disturbed. In order to maintain essential habitat for Mojave fringe-toed lizard, long-term sand supplies, resulting from both fluvial and Aeolian processes, will be protected.</p> <ul style="list-style-type: none"> • Objective MFTL2.1: For each dune system, delineate sand source areas and sand transport corridors. Describe the sediment (sand) delivery system, fluvial depositional areas, and Aeolian sand transport corridors, and quantify the sand budget for Mojave fringe-toed lizard habitat (see Griffiths et al. 2002). • Objective MFTL2.2: Categorize sand migration corridors into zones by degree of sand transport (see PWA 2010). Zones of highest sand transport would receive the highest levels of protection. • Objective MFTL2.3: Protect sand source areas and sand transport corridors by restricting development on alluvial fans, preventing alteration of stream channels by channelization, preventing in-stream gravel mining, and reducing the number of roads, fences, and structures. <p>Goal MFTL3: Maintain, restore, and improve habitat quality within essential habitat.</p> <ul style="list-style-type: none"> • Objective MFTL3.1: Control OHV use, which can degrade Mojave fringe-toed lizard habitat by compacting sands and destroying vegetation used by Mojave fringe-toed lizard for thermoregulation and predator evasion. • Objective MFTL3.2: Control the spread of invasive plants (e.g., Sahara mustard and Russian thistle), which can degrade Mojave fringe-toed lizard habitat by stabilizing dunes. <p>Goal MFTL4: Protect other habitat (e.g., sandy plains, sandy fans) to provide sufficient area and variety of habitat types to accommodate population fluctuations, allow for genetic diversity, provide linkages, and to conserve the range of environmental conditions within which this lizard is known to occur.</p>	<ul style="list-style-type: none"> ◦ Habitat along the Mojave River and Afton Canyon • Step-Down Biological Objective MFTL-C: Establish long-term conservation to protect, manage, and enhance habitat value for 14,000 acres of Mojave fringe-toed lizard habitat that contributes to the DRECP NCCP reserve design in and around the following area: Cadiz Valley and Chocolate Mountains ecoregion subarea. • Step-Down Biological Objective MFTL-D: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for Mojave fringe-toed lizard in the following areas: <ul style="list-style-type: none"> ◦ Portions of the Palen Ford complex ◦ Dumont Dunes ◦ Rice Valley ◦ Portions of Dale Dry Lake ◦ Portions of Dagget-Yermo-Newberry Springs • Step-Down Biological Objective MFTL-E: Implement CMAs for Covered Activities that avoid and minimize impacts to Mojave fringe-toed lizard and Mojave fringe-toed lizard habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term dune and Aeolian processes avoidance requirements within DFAs. • Step-Down Biological Objective MFTL-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for Mojave fringe-toed lizard.
04. Tehachapi Slender Salamander – <i>Batrachoseps stebbinsi</i> (TSSA)	<p>Goal TSSA1: Conserve Tehachapi slender salamander in the Plan Area by conserving the documented occurrence locations and newly discovered locations in the Plan Area with emphasis on conservation in areas where species and natural communities are most likely to be adaptive and resilient in response to the effects of environmental changes in climate, temperature and precipitation, including range shifts, contractions, expansions, local extirpation, and recolonization.</p> <ul style="list-style-type: none"> • Objective TSSA1.1: Conserve and avoid Tehachapi slender salamander habitat within the areas of all occurrence locations, including: <ul style="list-style-type: none"> ◦ Caliente Creek Canyon between Plan Area boundary near the town of Caliente and confluence with Studhorse Canyon ◦ Indian Creek between confluence with Silver Creek and Unnamed Canyon south of Indian Creek ◦ Silver Creek above confluence with Indian Creek ◦ Unnamed Canyon south of Indian Creek ◦ Tollgate Canyon • Objective TSSA1.2: Enhance habitat at sites that support Tehachapi slender salamander to maintain and promote the increase of existing populations: <ul style="list-style-type: none"> ◦ Decrease human-caused habitat disturbance 	<ul style="list-style-type: none"> • Step-Down Biological Objective TSSA-A: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for Tehachapi slender salamander in the Tehachapi Mountains area of the West Mojave and Eastern Slopes ecoregion subarea. • Step-Down Biological Objective TSSA-B: Implement CMAs for Covered Activities that avoid and minimize impacts to Tehachapi slender salamander and Tehachapi slender salamander habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term riparian natural communities avoidance requirements within DFAs, including resource setbacks. Additionally, institute and implement over the permit term occupied habitat avoidance requirements with setbacks. • Step-Down Biological Objective TSSA-C: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for Tehachapi slender salamander.

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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
05. Bendire's Thrasher – <i>Toxostoma bendirei</i> (BETH)	<p>Goal BETH1: Conserve and maintain or increase the distribution, population size, or number of populations of Bendire's thrasher in the Plan Area to prevent its need to be listed.</p> <ul style="list-style-type: none"> • Objective BETH1.1: Conserve and avoid occurrences of Bendire's thrasher in the Plan Area, including an appropriate buffer to reduce potential edge effects. Occurrences of Bendire's thrasher are patchily distributed, in apparently small, disjunct, isolated populations that can be represented in eight general areas of the California desert (Penrod et al. 2012). • Objective BETH1.2: Conserve, avoid, and enhance habitat that supports Bendire's thrasher. • Objective BETH1.3: Improve knowledge of species distribution to inform future management. • Objective BETH1.4: Manage stressors and threats within Bendire's thrasher habitat to ensure that breeding and populations are supported. 	<ul style="list-style-type: none"> • Step-Down Biological Objective BETH-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) Bendire's thrasher habitat in the following areas: <ul style="list-style-type: none"> ◦ Mojave Preserve ◦ Joshua Tree National Park ◦ BLM Wilderness Areas (Whipple Mountains, Turtle Mountains, Chemehuevi Mountains) • Step-Down Biological Objective BETH-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative Bendire's thrasher habitat in the following areas: <ul style="list-style-type: none"> ◦ Granite and Stoddard Mountains, including the BLM Bendire's Thrasher ACEC Unit ◦ Northern Tehachapi Mountains ◦ Southern Sierra Nevada/Scodie Mountains, including the BLM's Jawbone/Butterbrecht ACEC Unit • Step-Down Biological Objective BETH-C: Establish long-term conservation to protect, manage, and enhance habitat value for 66,000 acres of Bendire's thrasher habitat that contributes to the DRECP NCCP Reserve Design in and around the following areas: West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes, or Cadiz Valley and Chocolate Mountains ecoregion subareas. • Step-Down Biological Objective BETH-D: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for Bendire's thrasher in the following area: <ul style="list-style-type: none"> ◦ Morongo Basin • Step-Down Biological Objective BETH-E: Implement CMAs for Covered Activities that avoid and minimize impacts Bendire's thrasher and Bendire's thrasher habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. • DRECP NCCP Objective BETH-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for Bendire's thrasher.
06. Burrowing Owl – <i>Athene cunicularia</i> (BUOW)	<p>Goal BUOW1: Conserve natural and agricultural habitats that support burrowing owls at a landscape scale (CDFG 2012a).</p> <ul style="list-style-type: none"> • Objective BUOW 1.1: Conserve high-quality suitable habitat in the areas of concentrated burrowing owl occurrences within the Plan Area of sufficient size and configuration to maintain and expand burrowing owl populations. Known population concentrations are found in the following areas described by ecoregion subareas: <ul style="list-style-type: none"> ◦ Imperial Valley (1), in the Imperial Borrego Valley ecoregion subarea ◦ Palo Verde Valley (2) in the Cadiz Valley and Chocolate Mountains ecoregion subarea ◦ West Mojave Desert (3) in the West Mojave and Eastern Slopes, and Pinto Lucerne Valley and Eastern Slopes ecoregion subareas. Burrowing owls are found primarily west of Barstow and north to Ridgecrest in the West Mojave and concentrations of owls are found around residential and agricultural areas in the Lucerne Valley, Apple Valley, and the Antelope Valley. ◦ North Mojave Desert (4) in the Panamint Death Valley and Owens River Valley ecoregion subareas ◦ East Mojave Desert (5) in the Kingston and Funeral Mountains, Mojave and Silurian Valley, Providence and Bullion Mountains, and Piute Valley and Sacramento Mountains ecoregion subareas. <p>Goal BUOW2: Maintain a stable population in the Imperial Valley (1) in the face of a changing water</p>	<ul style="list-style-type: none"> • Step-Down Biological Objective BUOW-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) burrowing owl habitat in the following areas: <ul style="list-style-type: none"> ◦ Portions of the non-agricultural habitat areas in Imperial Valley ◦ Portions of the non-agricultural habitat areas in West Mojave Desert (3), primarily west of Barstow and north to Ridgecrest ◦ Portions of the non-agricultural habitat areas in North Mojave Desert (4) in the Panamint Death Valley and Owens River Valley ecoregion subareas ◦ Portions of the non-agricultural habitat areas in East Mojave Desert (5) in the Kingston and Funeral Mountains, Mojave and Silurian Valley, Providence and Bullion Mountains, and Piute Valley and Sacramento Mountains ecoregion subareas • Step-Down Biological Objective BUOW-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative burrowing owl habitat in the following areas: <ul style="list-style-type: none"> ◦ Portions of the non-agricultural habitat areas in Imperial Valley ◦ Portions of the non-agricultural habitat areas in West Mojave Desert (3), primarily west of Barstow

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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<p>irrigation regime through the Colorado River Quantification Settlement Agreement (QSA).</p> <ul style="list-style-type: none"> • Objective BUOW2.1: Maintain a minimum population of 5,100 pairs of burrowing owls in the Imperial Valley agricultural matrix (Manning 2009; Wilkerson and Siegel, 2010, 2011), with at least 500 pairs on either conserved irrigated lands or within the canals or ditches abutting the irrigated lands in the Imperial Valley by the end of the DRECP period. • Objective BUOW2.2: Maintain approximately 421,000 acres of agricultural matrix habitat in its current state for burrowing owl to achieve a minimum population of 5,100 pairs of birds. <p>Goal BUOW3: Maintain size and distribution of extant burrowing owl populations in the other burrowing owl Conservation Areas.</p> <ul style="list-style-type: none"> • Objective BUOW3.1: Maintain a minimum population of 180 pairs of burrowing owls in the Palo Verde Valley (2) agricultural areas (Wilkerson and Siegel, 2010, 2011) by maintaining 122,000 acres of agricultural matrix habitat in its current state through the end of the DRECP period. • Objective BUOW3.2: Maintain a minimum population of 560 pairs (Wilkerson and Siegel 2011) of burrowing owls in the West Mojave Desert (3) agricultural/natural desert matrix by the end of the DRECP period. • Objective BUOW3.3: Maintain existing population of burrowing owls in the North Mojave Desert (4) agricultural/natural desert matrix by the end of the DRECP period. • Objective BUOW3.4: Maintain existing population of burrowing owls in the East Mojave Desert (5) natural desert areas by the end of the DRECP period. 	<p>and north to Ridgecrest</p> <ul style="list-style-type: none"> ○ Portions of the non-agricultural habitat areas in North Mojave Desert (4) in the Owens River Valley subareas. <ul style="list-style-type: none"> • Step-Down Biological Objective BUOW-C: Establish long-term conservation to protect, manage, and enhance habitat value for 167,000 acres of burrowing owl habitat that contributes to the DRECP NCCP Reserve Design in and around the following areas: West Mojave and Eastern Slopes ecoregion subarea, Pinto Lucerne Valley and Eastern Slopes ecoregion subarea, Cadiz Valley and Chocolate Mountains ecoregion subarea, and in areas in the Imperial Borrego Valley ecoregion subarea identified through Plan implementation as important to burrowing owl conservation. • Step-Down Biological Objective BUOW-D: Maintain and manage for resource values on BLM LUPA conservation designation lands non-agricultural habitat for burrowing owl across the Plan Area in the known population concentrations identified in Plan-wide Objective BUOW 1.1. • Step-Down Biological Objective BUOW-E: Implement CMAs for Covered Activities that avoid and minimize impacts to burrowing owl and burrowing owl habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species. • Step-Down Biological Objective BUOW-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for burrowing owl.
07. California Black Rail – <i>Laterallus jamaicensis coturniculus</i> (CBRA)	<p>Goal CBRA1: Conserve California black rail habitat and maintain the population size of the California black rail in the Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley ecoregion subareas. Emphasize conservation in areas where California black rails are most likely to be adaptive and resilient in response to the effects of environmental changes, including range shifts, contractions, expansions, local extirpation, and recolonization, as well as environmental changes in climate, temperature, and precipitation.</p> <ul style="list-style-type: none"> • Objective CBRA1.1: Conserve and avoid suitable habitat adjacent to the Colorado, New, and Alamo rivers; Sonny Bono Salton Sea National Wildlife Refuge; state of California Imperial Wildlife Area; and Imperial Irrigation District managed wetland. • Objective CBRA1.2: Create, restore, and enhance California black rail nesting habitat in viable locations focusing on areas of documented occurrences. 	<ul style="list-style-type: none"> • Step-Down Biological Objective CBRA-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) California black rail habitat in the following areas: <ul style="list-style-type: none"> ○ Portions of the Alamo River ○ Sonny Bono Salton Sea National Wildlife Refuge at the southern edge of the Salton Sea ○ Portions of the Colorado River • Step-Down Biological Objective CBRA-B: Implement CMAs that apply to Covered Activities that will avoid and minimize the effects on California black rail habitat and California black rail habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term riparian and wetland natural communities and managed wetlands avoidance requirements within DFAs, including resource setbacks. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species. • Step-Down Biological Objective CBRA-C: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for California black rail.
08. California Condor – <i>Gymnogyps californianus</i> (CACO)	<p>Goal CACO1: Avoid take of California condor.</p> <p>Goal CACO2: Enhance the recovery of the condor in the wild, focusing on adaptation and resilience in response to the effects of changes within their populations, including range shifts, contractions, expansions,</p>	<ul style="list-style-type: none"> • Step-Down Biological Objective CACO-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) California condor habitat; however, nesting has not been documented in the Plan Area, and condor use of the Plan Area is limited to foraging and temporary roosting in the areas of the

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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<p>local extirpation, and recolonization. Areas for conservation emphasis will be informed in part by monitoring and adaptive management.</p> <ul style="list-style-type: none"> • Objective CACO2.1: Remove or reduce potential threats and environmental stressors that negatively affect condor population within the planning area, including: <ul style="list-style-type: none"> ◦ Reduce mortality risk associated with exposure to lead by (a) implementing a lead reduction program within the planning area and (b) maintaining and enforcing a permanent ban of the use of lead ammunition per the Ridley-Tree Condor Preservation Act in appropriate portions of the planning area (primarily deer hunt zones D-9, 10, and 11). ◦ Decrease, relative to existing conditions, mortality risks associated with Covered Activities including: <ul style="list-style-type: none"> ▪ Flight strike hazards, including unmarked transmission lines, unmarked guy-wires, and wind turbines ▪ Electrocution ▪ Ingestion of micro trash ▪ Exposure to poisons and other toxins, such as ethylene glycol and petroleum ▪ Illegal shooting ▪ Habituation risks associated with human interaction by discouraging attraction to new developments ▪ Eliminating livestock grazing from wind farms • Objective CACO2.2: Conserve and avoid foraging habitat, including by maintaining existing practices in the Plan Area, such as grazing and non-lead ammunition hunting in the DRECP reserve. • Objective CACO2.3: Conserve and avoid traditional roosting habitat, including tree preservation and snag retention. <p>Goal CACO3: Develop and promote public information and agency enforcement programs that foster public awareness of and compliance with condor conservation, management, and research efforts.</p>	<p>Tehachapi Mountains, Castaic Mountains, San Gabriel Mountains, and the San Bernardino Mountains. Within the Plan Area, small portions of the northern Tehachapi Mountains occur within LLPAs.</p> <ul style="list-style-type: none"> • Step-Down Biological Objective CACO-B: Establish long-term conservation to protect, manage, and enhance habitat value for 48,000 acres of California condor habitat that contributes to the DRECP NCCP Reserve Design in and around the following areas: West Mojave and Eastern Slopes ecoregion subarea and Pinto Lucerne Valley and Eastern Slopes ecoregion subarea. • Step-Down Biological Objective CACO-C: Maintain and manage for resource values on BLM LUPA conservation designation lands foraging and temporary roosting habitat for California condor in the following areas: <ul style="list-style-type: none"> ◦ Tehachapi Mountains ◦ Castaic Mountains ◦ San Gabriel Mountains ◦ San Bernardino Mountains • Step-Down Biological Objective CACO-D: Implement CMAs for Covered Activities that avoid and minimize impacts to California condor and California condor habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species. • Step-Down Biological Objective CACO-E: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for California condor.
09. Gila Woodpecker – <i>Melanerpes uropygialis</i> (GIWO)	<p>Goal GIWO1: Conserve Gila woodpecker across its range within the Plan Area, placing emphasis on conserving suitable habitat where the species has been recently detected and is most likely to be adaptive and resilient in response to the effects of environmental change, including, range shifts, contractions, expansions, local extirpation, and recolonization as well as changes in climate, temperature, and precipitation.</p> <ul style="list-style-type: none"> • Objective GIWO1.1: Conserve Gila woodpecker habitat in the Imperial Borrego Valley, and Cadiz Valley and Chocolate Mountains ecoregion subareas. • Objective GIWO1.2: Conserve at least 25 acres of suitable habitat surrounding recent detection data, prioritizing conservation in the following locations: <ul style="list-style-type: none"> ◦ Habitat west of the intersection of West D Street and Pinner Drive, Brawley, California, and east of the New River, Imperial County ◦ Approximately 5 miles of washes west of the Cargo Muchacho Mountains (Ogilby Road), south of Indian Pass Road, north of Gold Rock Ranch, Imperial County ◦ Approximately 5 miles of washes west of Black Mountain, east of Highway 78, Imperial County ◦ Approximately 5 miles of Braided Wash and its adjoining tributary washes, west of Highway 78 and east of the Chocolate Mountains, excluding Department of Defense land, Imperial County ◦ Approximately 14 miles of washes along the eastern edge of Imperial Sand Dunes Recreational Area, Imperial County ◦ Approximately 2 miles of the wash containing ironwood trees extending from the southeastern border of the Desert Harvest Solar project site southeast to Highway 177, Riverside County 	<ul style="list-style-type: none"> • Step-Down Biological Objective GIWO-A: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for Gila woodpecker in following areas: <ul style="list-style-type: none"> ◦ Washes west of the Cargo Muchacho Mountains (Ogilby Road), south of Indian Pass Road, north of Gold Rock Ranch, Imperial County ◦ Washes west of Black Mountain, east of Highway 78, Imperial County ◦ Washes, west of Highway 78 and east of the Chocolate Mountains, excluding Department of Defense land, Imperial County ◦ Washes along the eastern edge of Imperial Sand Dunes Recreational Area, Imperial County • Step-Down Biological Objective GIWO-B: Implement CMAs for Covered Activities that avoid and minimize impacts to Gila woodpecker and Gila woodpecker habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term riparian natural communities avoidance requirements within DFAs, including resource setbacks. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species. • Step-Down Biological Objective GIWO-C: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for Gila woodpecker.

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	<ul style="list-style-type: none"> ○ Network of washes extending east from Joshua Tree National Park to the western border of the Desert Harvest Solar project site • Objective GIWO1.3: Improve, relative to existing standards, knowledge of Gila woodpecker distribution and life history to inform future management actions. <p>Goal GIWO2: Conserve Gila woodpecker within the Plan Area by increasing the number of breeding pairs throughout its range.</p> <ul style="list-style-type: none"> • Objective GIWO2.1: Increase the California population of 30–100 pairs⁴ by 1.5% per year throughout the range through the year 2040. <p>Goal GIWO3: Remove or reduce potential threats and environmental stressors to maintain and enhance populations.</p> <ul style="list-style-type: none"> • Objective GIWO3.1: Improve relative to existing conditions Gila woodpecker abundance and resilience to climate change throughout its range in the Plan Area. 	
10. Golden Eagle – <i>Aquila chrysaetos</i> (GOEA)	<p>Goal GOEA1: Maintain a robust and resilient population of golden eagles in the Plan Area that is adaptive to changing conditions.</p> <ul style="list-style-type: none"> • Objective GOEA1.1: Improve productivity by enhancing nesting habitat and nesting opportunities. • Objective GOEA1.2: Maintain or enhance golden eagle prey base. • Objective GOEA1.3: Conserve active nest sites. • Objective GOEA1.4: Establish and maintain a landscape-scale reserve system for golden eagles that is adaptive to changing conditions, including range shifts, contractions, expansions, and recolonization in response to climate change. • Objective GOEA1.5: Maintain viable eagle populations that are subject to reduced threats within the Plan Area. <p>Goal GOEA2: Develop and maintain an informed and scientifically supported information base to effectively implement golden eagle conservation.</p> <ul style="list-style-type: none"> • Objective GOEA2.1: Establish and conduct a research and monitoring program to inform and support golden eagle conservation and take authorization within the Plan Area. • Objective GOEA2.2: Develop and implement an adaptive management program to inform and improve management of the golden eagle within the Plan Area. <p>Goal GOEA3: Develop a well-informed public and effective monitoring and enforcement program that supports golden eagle conservation and compliance with relevant authorities.</p> <ul style="list-style-type: none"> • Objective GOEA3.1: Develop and promote public information and agency enforcement programs that foster public awareness of, and compliance with, golden eagle conservation, management, monitoring, research, and adaptive management efforts. 	<ul style="list-style-type: none"> • Step-Down Biological Objective GOEA-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) golden eagle nesting and foraging habitat in the following areas: <ul style="list-style-type: none"> ○ Mojave Preserve ○ Joshua Tree National Park ○ Death Valley National Park ○ BLM Wilderness Areas • Step-Down Biological Objective GOEA-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative golden eagle nesting and foraging habitat in the following areas: <ul style="list-style-type: none"> ○ Granite and Stoddard Mountains ○ El Paso Mountains and Northern Tehachapi Mountains • Step-Down Biological Objective GOEA-C: Establish long-term conservation to protect, manage, and enhance habitat value for 76,000 acres of nesting habitat and 257,000 acres of foraging habitat for golden eagle that contributes to the DRECP NCCP Reserve Design in and around the following areas: West Mojave and Eastern Slopes ecoregion subarea, Pinto Lucerne Valley and Eastern Slopes ecoregion subarea, and Cadiz Valley and Chocolate Mountains ecoregion subarea. • Step-Down Biological Objective GOEA-D: Maintain and manage for resource values on BLM LUPA conservation designation lands nesting and foraging habitat for golden eagle throughout the Plan Area. • Step-Down Biological Objective GOEA-E: Implement CMAs for Covered Activities that avoid and minimize impacts to golden eagle and golden eagle habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, establish an approach to covering golden eagle under the Plan that includes advance conservation practices for golden eagle. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species. • Step-Down Biological Objective GOEA-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for golden eagle.

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11. Greater Sandhill Crane – <i>Grus canadensis tabida</i> (GSCR)	<p>Goal GSCR1: Conserve natural and managed/constructed wetlands and agricultural lands and maintain a stable population of greater sandhill cranes. Emphasize conservation in areas where greater sandhill cranes are most likely to be adaptive and resilient in response to the effects of environmental changes, including range shifts, contractions, expansions, local extirpation, and recolonization, as well as environmental changes in climate, temperature, and precipitation.</p> <ul style="list-style-type: none"> • Objective GSCR1.1: Conserve and avoid high quality habitat in known roosting and foraging areas within the Imperial Borrego Valley ecoregion subarea (Imperial County). • Objective GSCR1.2: Maintain a minimum overwintering population size of 720 individuals within Imperial County. 	<ul style="list-style-type: none"> • Step-Down Biological Objective GSCR-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) greater sandhill crane habitat in the following areas: <ul style="list-style-type: none"> ◦ Portions of the Alamo River ◦ Sonny Bono Salton Sea National Wildlife Refuge at the southern edge of Salton Sea ◦ Portions of the Colorado River • Step-Down Biological Objective GSCR-B: Implement CMAs for Covered Activities that avoid and minimize impacts to greater sandhill crane and greater sandhill crane habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term riparian and wetland natural communities and managed wetlands avoidance requirements within DFAs, including resource setbacks. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species. • Step-Down Biological Objective GSCR-C: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for greater sandhill crane.
12. Least Bell's Vireo – <i>Vireo bellii pusillus</i> (LBVI)	<p>Goal LBVI1: Conserve, avoid, restore, and enhance least Bell's vireo habitat to increase the population size and distribution of the species in the Plan Area.</p> <ul style="list-style-type: none"> • Objective LBVI1.1: Conserve least Bell's vireo breeding habitat through development restrictions and buffers, public land management planning processes, conservation easements, and land acquisition agreements for private lands. • Objective LBVI1.2: Restore and protect nesting habitat for least Bell's vireo by increasing the quality and extent of early to mid-successional riparian vegetation with a well-developed understory of dense shrubs and a structurally diverse canopy in the following areas: <ul style="list-style-type: none"> ◦ Anza-Borrego Desert Population Unit: Vallecito, San Felipe, Carrizo, Agua Caliente, Bow Willow, Windmill, and Coyote creeks; Carrizo Marsh; Borrego Palm, Sheep, and Sentenac canyons; Yaqui Well Wash; and Tamarisk Grove ◦ Mojave River: Mojave Narrows Regional Park (including Desert Knolls Wash and Lower Slough) to Bryman Road (north of Victorville) ◦ Amargosa River from Spanish Trail Highway to T19N R7E N ½ Section 10 ◦ Amargosa River: the riparian woodland at Shoshone, CA (Township 22N, Range 7E) ◦ Amargosa River near Tecopa (Willow Spring) ◦ Amargosa Creek (west of Palmdale) ◦ The Owens River and all tributary systems from Birch Creek to Owens Lake ◦ Craig Canyon in Death Valley National Park ◦ The Alamo River, the New River, and Greeson Wash ◦ Willow Hole Oasis in Joshua Tree National Park • Objective LBVI1.3: Maintain the breeding population in the Anza-Borrego Desert population throughout the permit term by controlling non-native brown-headed cowbird (<i>Molothrus ater</i>) populations and protecting vireo habitat from anthropogenic disturbances through a long-term management plan. • Objective LBVI1.4: Recover the former distribution of the Bell's vireo along the Mojave River, Owens 	<ul style="list-style-type: none"> • Step-Down Biological Objective LBVI-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) least Bell's vireo habitat in the following areas: <ul style="list-style-type: none"> ◦ Portions of the Anza-Borrego Desert Population Unit ◦ Portions of the Alamo River ◦ Portions of the Owens River Valley ◦ Portions of the Amargosa River • Step-Down Biological Objective LBVI-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative least Bell's vireo habitat in the following areas: <ul style="list-style-type: none"> ◦ Mojave River ◦ Owens River • Step-Down Biological Objective LBVI-C: Establish long-term conservation to protect, manage, and enhance habitat value for 2,000 acres of least Bell's vireo habitat that contributes to the DRECP NCCP Reserve Design in and around the following areas: West Mojave and Eastern Slopes ecoregion subarea, Pinto Lucerne Valley and Eastern Slopes ecoregion subarea, and in other areas of the Plan Area identified through Plan implementation as important to riparian species conservation. • Step-Down Biological Objective LBVI-D: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for least Bell's vireo in the following areas: <ul style="list-style-type: none"> ◦ Portions of the Anza-Borrego Desert Population Unit: Vallecito, San Felipe, Carrizo, Agua Caliente, Bow Willow, Windmill, and Coyote creeks; Carrizo Marsh; Borrego Palm, Sheep, and Sentenac canyons; Yaqui Well Wash; and Tamarisk Grove ◦ Remainder of the Amargosa River ◦ Tributary systems of Owens River from Birch Creek to Owens Lake • Step-Down Biological Objective LBVI-E: Implement CMAs for Covered Activities that avoid and minimize impacts least Bell's vireo and least Bell's vireo habitat. Institute and implement over the

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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<p>River, Amargosa River, and Morongo Valley, as measured by the distribution of breeding pairs and occupied breeding territories.</p> <ul style="list-style-type: none"> • Objective LBVI1.5: Assess population impact levels and reduce impacts from the following threats: cattle grazing, equestrian centers, off-road vehicle recreation, and road projects. • Objective LBVI1.6: Improve knowledge of the species’ abundance and distribution in all potential Bell’s vireo breeding habitats in the Plan Area, and adapt habitat management based on the results. <p>Goal LBVI2: Reduce biological threats and environmental stressors to least Bell’s vireos and their breeding habitat in the Plan Area.</p> <ul style="list-style-type: none"> • Objective LBVI2.1: Reduce the numerical abundance of non-native biological stressors (both plants and Bell’s vireo nest parasites) in all potential least Bell’s vireo breeding habitat in the Plan Area. • Objective LBVI2.2: Reduce the individual and collective ability of non-native biological stressors to outcompete native riparian trees and shrubs in all potential least Bell’s vireo breeding habitat in the Plan Area. 	<p>permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term RIP avoidance requirements within DFAs, including resource setbacks. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species.</p> <ul style="list-style-type: none"> • Step-Down Biological Objective LBVI-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for least Bell’s vireo.
13. Mountain Plover – <i>Charadrius montanus</i> (MOPL)	<p>Goal MOPL1: Conserve and avoid agricultural habitat in the Imperial Valley to provide enough suitable habitat for mountain plovers so as to maintain and expand the population of mountain plovers wintering in the Plan Area (Andres and Stone 2010).</p> <p>Goal MOPL2: Eliminate or alleviate threats to mountain plovers which could further reduce the size of the population or which constrain recovery of the species’ population in the Plan Area.</p>	<ul style="list-style-type: none"> • Step-Down Biological Objective MOPL-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) mountain plover habitat in the following areas: <ul style="list-style-type: none"> ◦ Sonny Bono Salton Sea National Wildlife Refuge at the southern edge of the Salton Sea ◦ Antelope Valley • Step-Down Biological Objective MOPL-B: Implement CMAs for Covered Activities that avoid and minimize impacts to mountain plover and mountain plover habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species. • Step-Down Biological Objective MOPL-C: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for mountain plover.
14. Swainson’s Hawk – <i>Buteo swainsoni</i> (SWHA)	<p>Goal SWHA1: Conserve natural and agricultural habitats that support Swainson’s hawks at a landscape scale within the Antelope and Owens valleys in order to increase the population size of Swainson’s hawk. Conservation should emphasize areas where Swainson’s hawks are most likely to be adaptive and resilient in response to the effects of changes within their populations, including range shifts, contractions, expansions, local extirpation, and recolonization; additionally, these areas should provide a refuge from environmental changes in climate, temperature, and precipitation.</p> <ul style="list-style-type: none"> • Objective SWHA1.1: Maintain or increase populations of Swainson’s hawk in the Antelope and Owens valleys. • Objective SWHA1.2: Conserve and augment Swainson’s hawk nesting and foraging habitat in the Antelope Valley agricultural matrices found within the West Mojave and Eastern Slopes ecoregion subarea. • Objective SWHA1.3: Avoid impacts to known Swainson’s hawk nests. 	<ul style="list-style-type: none"> • Step-Down Biological Objective SWHA-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) Swainson’s hawk habitat in the following areas: <ul style="list-style-type: none"> ◦ Portions of the Alamo River ◦ Sonny Bono Salton Sea National Wildlife Refuge at the southern edge of the Salton Sea ◦ Portions of the Owens River Valley • Step-Down Biological Objective SWHA-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative Swainson’s hawk habitat in the following areas: <ul style="list-style-type: none"> ◦ Mojave River ◦ Owens River • Step-Down Biological Objective SWHA-C: Establish long-term conservation to protect, manage, and enhance habitat value for 6,000 acres of Swainson’s hawk habitat that contributes to the DRECP NCCP Reserve Design in and around the following areas: West Mojave and Eastern Slopes ecoregion subarea and Owens River Valley ecoregion subarea. • Step-Down Biological Objective SWHA-D: Implement CMAs for Covered Activities that avoid and minimize impacts to Swainson’s hawk and Swainson’s hawk habitat. Institute and implement over the

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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
		permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, avoid known nests with nest setbacks within DFAs. Additionally, institute and implement over the permit term riparian natural community avoidance requirements within DFAs, including resource setbacks. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species. • Step-Down Biological Objective SHWA-E: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for Swainson’s hawk.
15. Tricolored Blackbird – <i>Agelaius tricolor</i> (TCBL)	Goal TCBL1: Conserve natural and agricultural habitats that support tricolored blackbird at a landscape scale within the Antelope and Owens valleys in order to increase the population size of the species in the Plan Area. Conservation should emphasize areas where tricolored blackbirds are most likely to be adaptive and resilient in response to the effects of changes within their populations, including range shifts, contractions, expansions, local extirpation, and recolonization; additionally, these areas should provide a refuge from environmental changes in climate, temperature, and precipitation. <ul style="list-style-type: none">• Objective TCBL1.1: Maintain or increase populations of tricolored blackbird in the Antelope and Owens valleys.• Objective TCBL1.2: Conserve tricolored blackbird nesting and foraging habitat in wetlands and agricultural lands found within the West Mojave and Eastern Slopes ecoregion subarea.• Objective TCBL1.3: Avoid impacts to nesting habitat and nesting colonies.	• Step-Down Biological Objective TCBL-A: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative tricolored blackbird habitat in the following areas: <ul style="list-style-type: none">◦ Mojave River • Step-Down Biological Objective TCBL-B: Establish long-term conservation to protect, manage, and enhance habitat value for 2,000 acres of tricolored blackbird habitat that contributes to the DRECP NCCP Reserve Design in and around the following areas: West Mojave and Eastern Slopes ecoregion subarea and Pinto Lucerne Valley and Eastern Slopes ecoregion subarea. • Step-Down Biological Objective TCBL-C: Implement CMAs for Covered Activities that avoid and minimize impacts tricolored blackbird and tricolored blackbird habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term riparian natural community avoidance requirements within DFAs, including resource setbacks. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species. • Step-Down Biological Objective TCBL-D: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for tricolored blackbird.
16. Western Yellow-billed Cuckoo – <i>Coccyzus americanus occidentalis</i> (WYBC)	Goal WYBC1: Increase the distribution, population size, and number of populations of western yellow-billed cuckoo and contribute to their recovery in the Plan Area with emphasis on conservation in areas where species and natural communities are most likely to be adaptive and resilient in response to the effects of environmental changes in climate, temperature, and precipitation, including range shifts, contractions, expansions, local extirpation, and recolonization. <ul style="list-style-type: none">• Objective WYBC1.1: Conserve and avoid suitable habitat for western yellow-billed cuckoo within the Plan Area, focusing conservation efforts on the Owens River Valley, Amargosa River, Mojave River, and Colorado River.• Objective WYBC1.2: Maintain and enhance natural hydrological and geomorphological conditions in the Owens River Valley, Amargosa River, Mojave River, and Colorado River to increase and enhance suitable habitat for the western yellow-billed cuckoo.• Objective WYBC1.3: Manage invasive species that threaten western yellow-billed cuckoo and its suitable habitat.<ul style="list-style-type: none">◦ Reduce the threat and spread of invasive plant species such as tamarisk in western yellow-billed cuckoo suitable habitat along the Lower Colorado River.	• Step-Down Biological Objective WYBC-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) western yellow-billed cuckoo habitat in the following areas: <ul style="list-style-type: none">◦ Portions of the Owens River Valley◦ Portions of the Amargosa River • Step-Down Biological Objective WYBC-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative western yellow-billed cuckoo habitat in the following areas: <ul style="list-style-type: none">◦ Mojave River◦ Owens River◦ Portions of the Colorado River • Step-Down Biological Objective WYBC-C: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for western yellow-billed cuckoo in the following areas: <ul style="list-style-type: none">◦ Remainder of the Amargosa River

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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
		<ul style="list-style-type: none">○ Tributary systems of Owens River• Step-Down Biological Objective WYBC-D: Implement CMAs for Covered Activities that avoid and minimize impacts western yellow-billed cuckoo and western yellow-billed cuckoo habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term riparian natural community avoidance requirements within DFAs, including resource setbacks. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species.• Step-Down Biological Objective WYBC-E: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for western yellow-billed cuckoo.
17. Willow Flycatcher (including Southwestern) – <i>Empidonax traillii</i> (including <i>extimus</i>) (WIFL)	<p>Goal WIFL1: Increase and enhance the extent and quality of willow flycatcher (include southwestern) suitable habitat in the Plan Area with emphasis on conservation in areas where species and natural communities are most likely to be adaptive and resilient in response to the effects of environmental changes in climate, temperature, and precipitation, including range shifts, contractions, expansions, local extirpation, and recolonization.</p> <ul style="list-style-type: none">• Objective WIFL1.1: Conserve and avoid suitable habitat for migrating willow flycatcher and southwestern willow flycatcher in the Plan Area.• Objective WIFL1.2: Maintain and enhance natural hydrological and geomorphological conditions in natural streams, springs, and seeps to enhance and increase suitable habitat for the willow flycatcher.• Objective WIFL1.3: Enhance suitable habitat for willow flycatcher by increasing the quality and extent of a dense mid-story and understory riparian vegetation location near surface water or saturated soils in the following areas:<ul style="list-style-type: none">○ Lower Colorado River Recovery Unit, including the following sites: Adobe Lake, Big Hole Slough, Blankenship, BR Lagoon, Cibola Lake, Clear Lake, Draper Lake, Ehrenberg, Ferguson Lake, Gila Confluence, Headgate Dam, Lake Havasu-Neptune, Mittry Lake State Wildlife Area, Picacho East, Taylor Lake, Topock Marsh, and Walker Lake○ Basin and Mojave Recovery Unit, including the following sites: Owens River—Big Pine, Owens River—Lone Pine Creek, Mojave River—Mojave Forks, Mojave River—Oro Grande, Mojave River—Upper Narrows, Mojave River—Victorville I-15, Holcomb Creek—Little Bear, San Felipe Creek—San Felipe, and Amargosa River• Objective WIFL 1.4: Enhance and protect nesting habitat for southwestern willow flycatcher by increasing the quality and extent of dense mid-story and understory riparian woodlands near surface water or saturated soils, through impact minimization or restoration in the following areas:<ul style="list-style-type: none">○ Owens River Management Unit – the Owens River and all tributary systems from Birch Creek to Owens Lake○ Amargosa Management Unit – the Amargosa River from Spanish Trail Highway to T19N R7E N ½ Section 10○ Amargosa Management Unit – the riparian woodland at Shoshone, California (Township 22N, Range 7E)○ Mojave River Management Unit – the Mojave River from Spring Valley Lake to Bryman Road, including habitat in Oro Grande, Mojave Narrows Regional Park, and in Victorville near I-15; West Fork of the	<ul style="list-style-type: none">• Step-Down Biological Objective WIFL-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) willow flycatcher habitat in the following areas:<ul style="list-style-type: none">○ Habitat in Anza-Borrego Desert State Park, such as Middle and Upper Willows, Coyote Canyon, and Carrizo Creek○ Portions of the Alamo River○ Portions of the Owens River Valley○ Portions of the Amargosa River• Step-Down Biological Objective WIFL-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative willow flycatcher habitat in the following areas:<ul style="list-style-type: none">○ Mojave River from Spring Valley Lake to Bryman Road, including habitat in Oro Grande, Mojave Narrows Regional Park, and in Victorville near I-15○ West Fork of the Mojave River from Cedar Springs Reservoir to Mojave Forks Dam○ Owens River• Step-Down Biological Objective WIFL-C: Establish long-term conservation to protect, manage, and enhance habitat value for 2,000 acres of willow flycatcher habitat that contributes to the DRECP NCCP Reserve Design in and around the following areas: West Mojave and Eastern Slopes ecoregion subarea, Pinto Lucerne Valley and Eastern Slopes ecoregion subarea, and in other areas of the Plan Area identified through Plan implementation as important to riparian species conservation.• Step-Down Biological Objective WIFL-D: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for willow flycatcher in the following areas:<ul style="list-style-type: none">○ Remainder of the Amargosa River○ Tributary systems of Owens River from Birch Creek to Owens Lake• Step-Down Biological Objective WIFL-E: Implement CMAs for Covered Activities that avoid and minimize impacts to willow flycatcher and willow flycatcher habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term riparian natural communities avoidance requirements

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	<p>Mojave River from Cedar Springs Reservoir to Mojave Forks Dam</p> <ul style="list-style-type: none">○ The Alamo River, the New River, and Greeson Wash○ Habitat in Anza-Borrego Desert State Park, such as Middle and Upper Willows, Coyote Canyon, and Carrizo Creek○ Any other USFWS-designated areas of Critical Habitat within the Plan Area <p>Goal WIFL2: Recover the population size and distribution of the southwestern willow flycatcher within the Plan Area.</p> <ul style="list-style-type: none">• Objective WIFL2.1: Increase the number of occupied breeding territories in the Plan Area to the following amounts (USFWS 2002), based on the 10-year average of annual surveys: <table><tr><th>USFWS Recovery Plan Management Unit (MU) or River</th><th>Territories Occupied in 2002</th><th>DRECP Target</th><th>Target Year</th></tr><tr><td>Owens River MU</td><td>28</td><td>50</td><td>2025</td></tr><tr><td>Amargosa River MU</td><td>3</td><td>15</td><td>2025</td></tr><tr><td>New River</td><td>0</td><td>25</td><td>2035</td></tr><tr><td>San Felipe Creek</td><td>2</td><td>5</td><td>2025</td></tr><tr><td>Alamo River</td><td>0</td><td>25</td><td>2035</td></tr><tr><td>Mojave River MU</td><td>13</td><td>25</td><td>2025</td></tr><tr><td>Total</td><td>45</td><td>145</td><td>2035</td></tr></table> <ul style="list-style-type: none">• Objective WIFL2.2: Increase the number of occupied breeding territories in the DRECP portion of the Lower Colorado River Valley to 300 occupied breeding territories by 2025, based on the 10-year average of annual surveys.• Objective WIFL2.3: Improve knowledge of the species’ abundance and distribution in all potential willow flycatcher breeding habitats in the Plan Area and adapt habitat management based on the results. <p>Goal WIFL3. Reduce biological threats and environmental stressors to southwestern willow flycatchers and their breeding habitat in the Plan Area.</p> <ul style="list-style-type: none">• Objective WIFL3.1: Reduce the numerical abundance of non-native biological stressors (both plants and flycatcher nest parasites) in all willow flycatcher breeding habitat in the Plan Area.• Objective WIFL3.2: Reduce the individual and collective ability of non-native biological stressors to outcompete native riparian trees and shrubs in all willow flycatcher breeding habitat in the Plan Area.	USFWS Recovery Plan Management Unit (MU) or River	Territories Occupied in 2002	DRECP Target	Target Year	Owens River MU	28	50	2025	Amargosa River MU	3	15	2025	New River	0	25	2035	San Felipe Creek	2	5	2025	Alamo River	0	25	2035	Mojave River MU	13	25	2025	Total	45	145	2035	<p>within DFAs, including resource setbacks. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species.</p> <ul style="list-style-type: none">• Step-Down Biological Objective WIFL-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for willow flycatcher.
USFWS Recovery Plan Management Unit (MU) or River	Territories Occupied in 2002	DRECP Target	Target Year																															
Owens River MU	28	50	2025																															
Amargosa River MU	3	15	2025																															
New River	0	25	2035																															
San Felipe Creek	2	5	2025																															
Alamo River	0	25	2035																															
Mojave River MU	13	25	2025																															
Total	45	145	2035																															
18. Yuma Clapper Rail – <i>Rallus longirostris yumanensis</i> (YCRA)	<p>Goal YCRA1: Conserve Yuma clapper rail habitat and maintain the population size of Yuma clapper rail in the Piute Valley and Sacramento Mountains, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley ecoregional subareas. Emphasize conservation in areas where Yuma clapper rails are most likely to be adaptive and resilient in response to the effects of environmental changes, including range shifts, contractions, expansions, local extirpation, and recolonization; as well as environmental changes in climate, temperature and precipitation.</p> <ul style="list-style-type: none">• Objective YCRA1.1: Conserve and avoid suitable habitat for Yuma clapper rail focusing on conservation of suitable habitat adjacent to the Colorado River and in Imperial County in the Salton Sea area, including suitable habitat areas adjacent to the Sonny Bono Salton Sea National Wildlife Refuge, the state of California’s Imperial Wildlife Area, and the Imperial Irrigation District’s managed wetland.• Objective YCRA1.2: Create, restore, and enhance Yuma clapper rail nesting habitat in viable locations focusing on areas of documented occurrences.	<ul style="list-style-type: none">• Step-Down Biological Objective YCRA-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) YCRA habitat in the following areas:<ul style="list-style-type: none">○ Portions of the Alamo River○ Sonny Bono Salton Sea National Wildlife Refuge at the southern edge of the Salton Sea○ Portions of the Colorado River• Step-Down Biological Objective YCRA-B: Implement CMAs that apply to Covered Activities that will avoid and minimize the effects on Yuma clapper rail and Yuma clapper rail habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term riparian and wetland natural communities																																

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		<p>and managed wetlands avoidance requirements within DFAs, including resource setbacks. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species.</p> <ul style="list-style-type: none"> • Step-Down Biological Objective YCRA-C: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for Yuma clapper rail.
19. Desert Pupfish – <i>Cyprinodon macularius</i> (DEPU)	<p>Goal DEPU1: Conserve, maintain, restore, and enhance desert pupfish habitat within its native range in springs, streams, playas, and margins of lakes and rivers within the Plan Area.</p> <ul style="list-style-type: none"> • Objective DEPU1.1: Conserve and avoid desert pupfish habitat, focusing in areas around known occurrences or areas with suitable site conditions for occurrence or recolonization, including: <ul style="list-style-type: none"> ◦ New River and Alamo River and the Lower portion of the Anza Borrego watershed (San Felipe creek) ◦ Salton Sea border, New River, and Alamo River ◦ New River and Alamo River watersheds ◦ New River (near Seeley and the entrance to the Salton Sea), All American Canal (southeast of El Centro), Coachella Canal, Holtville main drain, and Alamo River (Finney Lake) ◦ Marsh habitat associated with New River and Alamo River, San Felipe Springs/San Sebastian Marsh, Anza-Borrego Desert State Park, and Hot Mineral Spa Wash <p>Goal DEPU2: Remove or reduce potential threats and environmental stressors to maintain and enhance populations.</p> <ul style="list-style-type: none"> • Objective DEPU2.1: Establish connectivity of desert pupfish drains and establish new native populations of desert pupfish through conservation of suitable habitat, including the following locations: <ul style="list-style-type: none"> ◦ Mule Spring ◦ Blackrock Waterfowl Management Area ◦ Cartago Springs Wildlife Area ◦ Southern shore of Owens Dry Lake • Objective DEPU2.2: Enhance habitat function and restore native habitat over time. 	<ul style="list-style-type: none"> • Step-Down Biological Objective DEPU-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) desert pupfish habitat in the following areas: <ul style="list-style-type: none"> ◦ Portions of the Alamo River ◦ Portions of San Felipe Creek ◦ Portions of the southern edge of the Salton Sea • Step-Down Biological Objective DEPU-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative desert pupfish habitat in the following areas: <ul style="list-style-type: none"> ◦ Portions of San Felipe Creek (west of the State Routes 78/86) • Step-Down Biological Objective DEPU-C: Implement CMAs that apply to Covered Activities that will avoid and minimize the effects on desert pupfish and desert pupfish habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term riparian and wetland natural communities and managed wetlands and drain habitat avoidance requirements within DFAs, including resource setbacks. • Step-Down Biological Objective DEPU-D: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for desert pupfish.
20. Mohave Tui Chub – <i>Siphateles bicolor mohavensis</i> (MTCH)	<p>Goal MTCH1: Maximize the number of populations, population size, and distribution of Mohave tui chub in the Plan Area including maximizing and managing for Mohave tui chub habitat diversity, availability, and occupancy within each population and between populations.</p> <ul style="list-style-type: none"> • Objective MTCH1.1: Conserve, avoid, and enhance all known populations of Mohave tui chub and enhance and conserve diverse habitat conditions for the species to persist at all occupied sites. Currently these include Naval Air Weapons Station–China Lake, Lake Tuendae and MC Spring, Camp Cady, Lewis Center, and Morning Star Mine Pond. <ul style="list-style-type: none"> ◦ Promote low-turbidity, low-velocity water with appropriate habitat for breeding, feeding, and shelter with a focus on enhancing habitat suitability for native aquatic species including the Mohave tui chub. • Objective MTCH1.2: Create or modify and enhance aquatic habitats at additional sites for the Mohave tui chub and establish additional populations at these sites. Sites include but are not limited to: <ul style="list-style-type: none"> ◦ Tributaries of the Mojave River (e.g., Deep Creek, Holcomb Creek), Piute Ponds, Muroc Lake, new pond at CDFW hatchery in Victorville, additional site(s) at Camp Cady, and possibly perennial portions of the Mojave River. • Objective MTCH1.3: Develop and implement management plans and agreements with landowners for all 	<ul style="list-style-type: none"> • Step-Down Biological Objective MTCH-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) Mohave tui chub habitat in the following areas: <ul style="list-style-type: none"> ◦ Lake Tuendae and MC Spring ◦ Morning Star Mine Pond • Step-Down Biological Objective MTCH-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative Mohave tui chub habitat in the following areas: <ul style="list-style-type: none"> ◦ Camp Cady • Step-Down Biological Objective MTCH-C: Implement CMAs that apply to Covered Activities that will avoid and minimize the effects on Mohave tui chub and Mohave tui chub habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term riparian and wetland natural communities avoidance requirements within DFAs, including resource setbacks. Additionally, institute and

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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<p>Mohave tui chub populations, including regular population monitoring and management of habitat including water quality, water quantity, and invasive and non-native species including emergent vegetation, non-native predators and competitors, and disease.</p> <ul style="list-style-type: none">• Objective MTCH1.4: Enhance and conserve habitat for Mohave tui chub to persist and remain genetically diverse at all occupied sites. Maintain or contribute to increasing water surface area at all known populations to promote increased habitat and population growth. <p>Goal MTCH2: Protect genetic integrity and enhance and maintain genetic diversity within each Mohave tui chub population and within the species, preserving as much “evolutionary potential” as possible, so that populations can persist and adapt to their changing environments.</p> <ul style="list-style-type: none">• Objective MTCH2.1: Prevent hybridization between Mohave tui chub and introduced arroyo chub by isolating populations of Mohave tui chubs with barriers to prevent mixing.• Objective MTCH2.2: Monitor genetic diversity within each Mohave tui chub population.• Objective MTCH2.3: Enhance and maintain genetic diversity within each Mohave tui chub population and among populations.<ul style="list-style-type: none">◦ Implement actions to prevent the loss of polymorphism and heterozygosity while maintaining divergence in allele frequencies in populations.◦ Maintain several large populations of Mohave tui chubs in areas with diverse habitats to minimize threats from genetic and demographic stochasticity. <p>Goal MTCH3: Implement the remaining Recommendations for Actions identified in the USFWS’s 5-Year Status Review for the Mohave Tui Chub and the recovery tasks associated with the downlisting criteria in the Recovery Plan for the Mohave Tui Chub.</p> <ul style="list-style-type: none">• Objective MTCH3.1: Successfully establish and maintain numerous populations of Mohave tui chub with successful reproduction and recruitment throughout the range of the species for the duration of the DRECP.	<p>implement over the permit term occupied habitat avoidance requirements with setbacks.</p> <ul style="list-style-type: none">• Step-Down Biological Objective MTCH-D: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for Mohave tui chub.
21. Owens Pupfish – <i>Cyprinodon radiosus</i> (OWPU)	<p>Goal OWPU1: Maximize the number of populations, population size, and distribution of Owens pupfish in the Owens River Valley subarea of the Plan Area including maximizing and managing for Owens pupfish habitat diversity, availability, and occupancy within each population and between populations.</p> <ul style="list-style-type: none">• Objective OWPU1.1: Conserve, avoid, and enhance all known populations of Owens pupfish within the Plan Area and conserve and enhance diverse habitat conditions for the species to persist at all occupied sites.<ul style="list-style-type: none">◦ Promote low-turbidity, low-velocity waters with appropriate habitats for breeding, feeding, and shelter with a focus on enhancing habitat suitability for Owens pupfish.• Objective OWPU1.2: Create or modify and enhance aquatic habitats at additional aquatic sites in the Plan Area for Owens pupfish and establish additional populations at these sites. These include but are not limited to sites in the Recovery Plan’s Southern Owens Conservation Area, the edges of the Owens Lake area, and Blackrock Conservation Area. Sites include:<ul style="list-style-type: none">◦ Cartago Wildlife Area, privately owned aquatic areas by Owens Lake, Little Blackrock Springs, Big Seeley Springs, Little Seeley Springs Pond, Hidden Lake corridor, Reinhackle Spring, Hines/Well 355, Hines/Aberdeen Ditch, NOMAZ, Homestead, Delta Habitat Area, and Blackrock Waterfowl Area• Objective OWPU1.3: Develop and implement management plans and agreements with landowners for all Owens pupfish populations, including regular population monitoring and management of habitat including water quality, water quantity, and invasive and non-native species including emergent vegetation, non-native predators and competitors, and disease.• Objective OWPU 1.4: Enhance and conserve habitat conditions in the Plan Area for Owens pupfish to persist	<ul style="list-style-type: none">• Step-Down Biological Objective OWPU-A: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for Owens pupfish in the following areas:<ul style="list-style-type: none">◦ The edges of the Owens Lake area◦ Blackrock conservation area• Step-Down Biological Objective OWPU-B: Implement CMAs that apply to Covered Activities that will avoid and minimize the effects on Owens pupfish and Owens pupfish habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term riparian and wetland natural communities avoidance requirements within DFAs, including resource setbacks. Additionally, institute and implement over the permit term occupied habitat avoidance requirements with setbacks.• Step-Down Biological Objective OWPU-C: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for Owens pupfish.

Table C-1
DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<p>and remain genetically diverse at all occupied sites. Maintain or contribute to increasing water surface area at all known populations within the Plan Area to promote increased habitat and population growth.</p> <p>Goal OWPU2: Protect the genetic integrity and enhance and maintain genetic diversity within each Owens pupfish population and within the species, preserving as much “evolutionary potential” as possible, so that populations can persist and adapt to changing environments.</p> <ul style="list-style-type: none"> • Objective OWPU2.1: Monitor genetic diversity within each Owens pupfish population. • Objective OWPU2.2: Enhance and maintain genetic diversity within each Owens pupfish population and among populations. <ul style="list-style-type: none"> ◦ Implement actions to prevent the loss of polymorphism and heterozygosity (e.g., move a minimum number of migrants per generation from each stable Owens pupfish population into one or more other populations) while maintaining divergence in allele frequencies in recipient populations. ◦ Maintain several large populations of Owens pupfish in areas with diverse habitats to minimize threats from genetic and demographic stochasticity. <p>Goal OWPU 3: Implement the remaining Recommendations for Actions identified in the USFWS’s 5-Year Status Review for the Owens Pupfish and the delisting criteria and recovery tasks for the part of the Owens Basin Wetland and Aquatic Species Recovery Plan that is within the range of the DRECP.</p> <ul style="list-style-type: none"> • Objective OWPU 3.1: Successfully establish and maintain numerous populations of Owens pupfish with successful reproduction and recruitment throughout the range of the species for the duration of the DRECP. 	
22. Owens Tui Chub – <i>Siphateles bicolor snyderi</i> = <i>Gila bicolor snyderi</i> (OTCH)	<p>Goal OTCH1: Maximize the number of populations, population size, and distribution of Owens tui chub in the Owens River Valley ecoregion subarea of the Plan Area.</p> <ul style="list-style-type: none"> • Objective OTCH1.1: Conserve, avoid, and enhance all known populations of Owens tui chub within the Plan Area and enhance and conserve diverse habitat conditions for the species to persist at all occupied sites. • Objective OTCH1.2: Create or modify and enhance aquatic habitats at additional aquatic sites in the Plan Area for Owens tui chub and establish refuge populations at these sites. Sites include but are not limited to: <ul style="list-style-type: none"> ◦ Locations in/near the Recovery Plan’s Southern Owens Conservation Area, the edges of the Owens Lake area, and Blackrock Conservation Area (e.g., sites include Cartago Wildlife Area, privately owned aquatic areas by Owens Lake, Little Blackrock Springs, Little Seeley Springs Pond, Reinhackle Spring, Hines/Aberdeen Ditch, Delta Habitat Area, Blackrock Waterfowl Area) • Objective OTCH1.3: Develop and implement management plans and agreements with landowners for all Owens tui chub populations, including regular population monitoring and management of habitat including water quality, water quantity, and invasive and non-native species including emergent vegetation, non-native predators and competitors, and disease. • Objective OTCH1.4: Enhance and conserve habitat conditions in the Plan Area for Owens tui chub to persist and remain genetically diverse within the identified lineage at all occupied sites. Maintain or contribute to increasing water surface area at all known populations within the Plan Area to promote increased habitat and population growth. <p>Goal OTCH2: Protect the genetic integrity of Owens tui chub in the Plan Area and maintain genetic diversity within each Owens tui chub population within the identified lineage so that populations can persist and adapt to their changing environments.</p> <ul style="list-style-type: none"> • Objective OTCH2.1: Prevent hybridization between Owens tui chub and Lahontan tui chub (<i>Siphateles bicolor obesus</i>) by maintaining isolated populations of Owens tui chub with barriers to prevent mixing (e.g., refuges). • Objective OTCH2.2: Create and populate additional habitats for the genetically distinct population or 	<ul style="list-style-type: none"> • Step-Down Biological Objective OTCH-A: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for Owens tui chub in the following areas: <ul style="list-style-type: none"> ◦ The edges of the Owens Lake area ◦ Blackrock conservation area • Step-Down Biological Objective OTCH-B: Implement CMAs that apply to Covered Activities that will avoid and minimize the effects on Owens tui chub and Owens tui chub habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement over the permit term riparian and wetland natural communities avoidance requirements within DFAs, including resource setbacks. Additionally, institute and implement over the permit term occupied habitat avoidance requirements with setbacks. • Step-Down Biological Objective OTCH-C: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for Owens tui chub.

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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<p>lineage known from Owens lakeshore (Cabin Bar Ranch) area.</p> <ul style="list-style-type: none">• Objective OTCH2.3: Monitor genetic diversity within each Owens tui chub population in the Plan Area.• Objective OTCH2.4: Enhance and maintain genetic diversity within each Owens tui chub population and among populations within the identified distinct lineage.<ul style="list-style-type: none">◦ Implement actions to prevent the loss of polymorphism and heterozygosity.◦ Maintain several large populations of Owens tui chub that include diverse habitats to minimize threats from genetic and demographic stochasticity. <p>Goal OTCH3: Implement the remaining Recommendations for Actions identified in the USFWS’s 5-Year Status Review for the Owens Tui Chub and the delisting criteria and recovery tasks for the part of the Owens Basin Wetland and Aquatic Species Recovery Plan that is within the range of the DRECP.</p> <ul style="list-style-type: none">• Objective OTCH3.1: Successfully establish and maintain numerous populations of Owens tui chub with successful reproduction and recruitment throughout the range of the species for the duration of the DRECP.	
23. Desert Bighorn Sheep – <i>Ovis canadensis nelsoni</i> (DBSH)	<p>Goal DBSH1: Conserve the desert bighorn sheep Sonoran–Mojave desert metapopulation) across the DRECP area within well-distributed habitat areas in mountain ranges and intermountain linkages. Emphasize conservation in areas where herds are most likely to be adaptive and resilient in response to the effects of changes within their metapopulations, including, range shifts, contractions, expansions, local extirpation, and recolonization, as well as environmental changes in climate, temperature, and precipitation.</p> <ul style="list-style-type: none">• Objective DBSH1.1: In each desert bighorn sheep metapopulation fragment conserve occupied habitat supporting well-distributed desert bighorn sheep mountain range herd units. Include the following four metapopulation fragments:<ul style="list-style-type: none">◦ Northern Metapopulation Fragment: Avawatz Mountains, Greenwater Range, Brown and Quail-Mountains, Cache Peak and El Paso Mountains, Chimney Peak, north half of Clark Mountain Range and Spring Range, Nopah Mountains and Resting Spring Range, Owlshead Mountain, Slate Range, and Soda Mountains◦ North–Central Metapopulation Fragment: Cady Mountains, Castle Mountains, Dead Mountains, Mescal Mountains, and North Bristol Mountains◦ South–Central Metapopulation Fragment: Big Maria Mountains; Bullion Mountains; Chemehuevi Mountains; Clipper Mountains; Granite Mountains (Riverside County) and Palen Mountains; Iron Mountains; Little Maria Mountains; Marble Mountains; McCoy Mountains; Newberry, Ord, and Rodman Mountains; North San Bernardino Mountains (Cushenbury); Old Woman and Piute Mountains; Pinto Mountains; Riverside Mountains; Sacramento Mountains; San Gorgonio Wilderness Area (eastern portion within Plan Area); Sheephole Mountains and Calumet Mountains; South Bristol Mountains; Turtle Mountains; and Whipple Mountains◦ Southern Metapopulation Fragment: Chuckwalla Mountains, East Chocolate Mountains and Cargo Muchacho Mountains, and Palo Verde Mountains• Objective DBSH1.2: Conserve high-priority intermountain habitat as functional dispersal and migration linkages connecting desert bighorn sheep mountain range herd units within the following metapopulation fragments.<ul style="list-style-type: none">◦ Northern Metapopulation Fragment: Panamint Valley between Argus Range and Panamint Range, Searles Valley between the Argus Range and Slate Range, Greenwater Valley between the Black Mountains and Greenwater Range, Amargosa Valley between the Greenwater Range and Resting Spring Range, Chicago Valley between the Resting Spring Range and Nopah Range, California Valley between the Nopah Range and the Kingston Range, Silurian Valley between the Avawatz Mountains	<ul style="list-style-type: none">• Step-Down Biological Objective DBSH-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) desert bighorn sheep habitat in the following areas:<ul style="list-style-type: none">◦ The occupied mountain ranges identified in Plan-wide Objective DBSH1.1 that occur throughout the Plan Area in National Parks, National Preserve, BLM Wilderness, and other LLPAs.◦ The intermountain habitat areas between occupied mountain ranges identified in Plan-wide Objective DBSH1.2 that occur throughout the Plan Area in National Parks, National Preserve, BLM Wilderness, and other LLPAs.• Step-Down Biological Objective DBSH-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative desert bighorn sheep habitat in the following areas:<ul style="list-style-type: none">◦ Newberry, Ord, and Rodman Mountains◦ North San Bernardino Mountains◦ El Paso Mountains◦ Corridors between the North San Bernardino Mountains and Newberry Mountains◦ Corridors between the San Gorgonio Wilderness Area and the western extremity of the Little San Bernardino Mountains◦ Portions of the valley habitats between the Palen-McCoy Mountains, Chuckwalla Valley between the Eagle Mountains and the Chuckwalla Mountains◦ Portions of the valley habitats between the Little Chuckwalla Mountains, Palo Verde Mountains, McCoy Mountains, Mule Mountains• Step-Down Biological Objective DBSH-C: Establish long-term conservation to protect, manage, and enhance habitat value for 91,000 acres of mountain habitat and 53,000 acres of intermountain habitat for desert bighorn sheep that contributes to the DRECP NCCP Reserve Design in and around the following areas: West Mojave and Eastern Slopes ecoregion subarea, Pinto Lucerne Valley and Eastern Slopes ecoregion subarea, and Cadiz Valley and Chocolate Mountains ecoregion subarea.• Step-Down Biological Objective DBSH-D: Maintain and manage for resource values on BLM LUPA conservation designation lands mountain and intermountain habitat for desert bighorn sheep.• Step-Down Biological Objective DBSH-E: Implement CMAs for Covered Activities that avoid and minimize impacts to desert bighorn sheep and desert bighorn sheep habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and

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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<p>and the Silurian Hills, Valley habitat between Soda and Cronese mountains (adjacent to and stops at I-15; does not extend to Cady Mountains), Habitat between Soda and Cronese mountains and Cady Mountains (also in North–Central Metapopulation Fragment) (merged with dispersal/migration corridor between Cady Mountains and Mojave National Preserve), dispersal and migration corridors between the Avawatz Mountains and the Kingston Range to the Clark Mountain Range, and habitat between Shadow Mountain and Turquoise Mountain (also in North–Central Metapopulation Fragment) to the northwest boundary of Mojave National Preserve.</p> <ul style="list-style-type: none">○ North–Central Metapopulation Fragment: Habitat between Soda and Cronese Mountains and Cady Mountains (also in Northern Metapopulation Fragment), dispersal and migration corridors between the Cady Mountains and Mojave National Preserve, Mojave River Wash and Devil's Playground between the Cady Mountains and Bristol Mountains to the western boundary of Mojave National Preserve, and Piute Valley between Piute Range and Dead Mountains east of Mojave National Preserve.○ South–Central Metapopulation Fragment: Dispersal and migration corridors between the North San Bernardino Mountains (Cushenbury) and Newberry Mountains to the western boundary of Twentynine Palms Marine Corps Base, dispersal and migration corridors between the southern tip of the Bullion Mountains at the southeast boundary of Twentynine Palms Marine Corps Base and Sheephole Mountains to the northern extremity of the Coxcomb Mountains, dispersal and migration corridors between the San Gorgonio Wilderness Area and the western extremity of the Little San Bernardino Mountains, dispersal and migration corridors between the South Bristol Mountains and Marble/Clipper Mountains to the Old Woman, Turtle, Whipple, and Chemehuevi mountains, Fenner Valley between Clipper Mountains and Old Woman Mountains to the southern boundary of Mojave National Preserve, Habitat in Amboy area between Bristol Mountains and Bullion Mountains north of Twentynine Palms Marine Corps Base, Johnson Valley between the Rodman Mountains and Lava Bed Mountains and the San Bernardino Mountains, Valley habitats between the Palen-McCoy Mountains, Little Maria and Big Maria Mountains, and the Riverside Mountains, Chuckwalla Valley between the Eagle Mountains and the Chuckwalla Mountains (also in Southern Metapopulation Fragment), Valley habitats between the Little Chuckwalla Mountains, Palo Verde Mountains, McCoy Mountains, Mule Mountains, Little Mule Mountains, and the northern boundary of the Chocolate Mountains Aerial Gunnery Range (also in Southern Metapopulation Fragment), Dispersal and migration corridors between the Old Woman Mountains and Iron Mountains to the Granite (Riverside County) and Coxcomb Mountains east of Joshua Tree National Monument, Valley habitats between the Sacramento and Chemehuevi Mountains, Valley habitats between the Chemehuevi and Whipple Mountains, and Valley habitats between San Gorgonio Wilderness Area (eastern portion within Plan Area) and the Little San Bernardino Mountains.○ Southern Metapopulation Fragment: Chuckwalla Valley between the Eagle Mountains and the Chuckwalla Mountains (also in South-Central Metapopulation Fragment), Valley habitats between the Little Chuckwalla Mountains, Palo Verde Mountains, Mule Mountains, Little Mule Mountains, and the northern boundary of the Chocolate Mountains Aerial Gunnery Range, Valley habitats between the northern boundary of the Chocolate Mountains Aerial Gunnery Range, Chuckwalla Mountains, and the Orocopia Mountains, Valley habitats between the Cargo Muchacho, Trigo, and Picacho mountains, and Dispersal and migration corridors between the Chuckwalla Mountains and the Orocopia Mountains <ul style="list-style-type: none">● Objective DBSH1.3: Promote unimpeded movement of desert bighorn sheep across highway infrastructure at high-priority inter-metapopulation fragment corridors (listed below) to help maintain genetic exchange between herds in mountain range herd units and access to seasonally available water	<p>standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design.</p> <ul style="list-style-type: none">● Step-Down Biological Objective DBSH-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for desert bighorn sheep.

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Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<p>and forage opportunities:</p> <ul style="list-style-type: none">○ Crossing of Interstate 15 (I-15) at Soda Mountains–South Soda Mountains and Cronese Mountains–Cady Mountains habitat connection○ Crossings of I-15 at Clark Mountains–Mescal Range habitat connection and/or Clark Mountains–Ivanpah Mountains habitat connection○ Crossing of I-40 at the Cady Mountains–Bullion Mountains habitat connection east of Ludlow○ Crossing of I-40 in the western portion of the Bristol Mountains○ Crossing of I-40 in the eastern portion of the Bristol Mountains and Old Dad Mountains area○ Crossing of I-40 at the Granite Mountains–Marble Mountains habitat connection○ Crossing of I-40 at the Dead Mountain-Sacramento Mountains habitat connection○ Crossing of I-10 at the Eagle Mountains–Chuckwalla Mountains habitat connection via Chuckwalla Valley○ Crossing of I-10 at the Granite–Palen Mountain and Chuckwalla Mountains.○ Crossing of I-10 at the McCoy Mountains and East Chocolate and Cargo Muchacho Mountains <ul style="list-style-type: none">● Objective DBSH1.4: Increase the number of desert bighorn sheep mountain range herd units in the metapopulation fragments by providing wildlife crossing structures across highway infrastructure and restoring bighorn sheep in the following suitable but currently vacant mountain ranges that are connected to occupied areas by functional intermountain linkages or inter-metapopulation fragment corridors:<ul style="list-style-type: none">○ Big Maria Mountains○ Cache Peak Mountains○ Chimney Peak Mountains○ El Paso Mountains○ McCoy Mountains○ Pinto Mountains-North half of range, outside of Joshua Tree National Monument○ Quail Mountains-Northwest portion of range, outside of Fort Irwin Military Reservation○ Riverside Mountains○ Sacramento Mountains○ Slate Mountains-North half of range, outside of China Lake Naval Weapons Center-East○ Soda Mountains○ Mescal Mountains○ Owlshead Mountains–Southern half of range, outside of Death Valley National Monument● Objective DBSH1.5: Establish and maintain for targeted desert bighorn sheep mountain range herd units within metapopulation fragments of at least 25 adult ewes or the existing number of adult ewes, whichever is greater.● Objective DBSH1.6: Maintain, enhance or reestablish desert bighorn sheep access to water sources in high-priority mountain and intermountain habitats, including perennial and seasonal (i.e., winter storm-monsoonal runoff) streams and rivers, springs, oases, and tinajas (potholes in rocks), or artificial water catchments (guzzlers) to improve habitat use and connectivity. <p>Goal DBSH2: Remove or reduce potential threats and environmental stressors to maintain and enhance bighorn sheep mountain range herd units.</p> <ul style="list-style-type: none">● Objective DBSH2.1: Increase relative to existing conditions desert bighorn sheep access to more water sources, and forage and lambing areas currently constrained by competition between bighorn sheep,	

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	<p>domestic and feral livestock, feral burros, and anthropogenic uses and disturbance (e.g., recreation).</p> <ul style="list-style-type: none"> • Objective DBSH2.2: Control transmission of livestock diseases to desert bighorn sheep by minimizing direct contact in locations between bighorn sheep and cattle, domestic sheep, and domestic and feral goats. • Objective DBSH2.3: Manage mountain lion predation where it affects growth and stability of high-priority individual desert bighorn sheep mountain range herd units. • Objective DBSH2.4: Maintain or enhance desert bighorn sheep movement to overcome anthropogenic barriers (e.g., fences) between high-priority mountain ranges. 	
24. California Leaf-Nosed Bat – <i>Macrotus californicus</i> (CLNB)	<p>Goal CLNB1: Conserve, maintain, or restore habitats used by California leaf-nosed bat across its range within the Plan Area, in order to maintain or increase the population within the Plan Area.</p> <ul style="list-style-type: none"> • Objective CLNB1.1: Protect, avoid, and maintain California leaf-nosed bat roosts, including all summer, lekking, and winter roosts. • Objective CLNB1.2: Conserve and avoid desert wash and riparian vegetation within commuting distance of roosts. <ul style="list-style-type: none"> ◦ Reduce the threat and spread of invasive plant species such as tamarisk in these areas. • Objective CLNB1.3: Restore desert wash and riparian vegetation in areas around known historic roosts where those vegetation types have been lost. • Objective CLNB1.4: Identify and protect fall lekking sites where they occur separate from summer or winter roosts. <p>Goal CLNB2: Monitor the conservation status of California leaf-nosed bat across its range within the Plan Area.</p> <ul style="list-style-type: none"> • Objective CLNB2.1: Conduct regular censuses of representative colonies during the Plan period. • Objective CLNB2.2: Summarize the conservation status of all known California leaf-nosed bat roost sites within the Plan Area. 	<ul style="list-style-type: none"> • Step-Down Biological Objective CLNB-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) California leaf-nosed bat habitat in the following areas: <ul style="list-style-type: none"> ◦ Joshua Tree National Park ◦ Mojave National Preserve ◦ BLM Wilderness ◦ Anza-Borrego State Park • Step-Down Biological Objective CLNB-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative roost sites and suitable habitat for the California leaf-nosed bat. • Step-Down Biological Objective CLNB-C: Establish long-term conservation to protect, manage, and enhance habitat value for 74,000 acres of California leaf-nosed bat habitat that contributes to the DRECP NCCP Reserve Design in and around the following areas: West Mojave and Eastern Slopes ecoregion subarea, Pinto Lucerne Valley and Eastern Slopes ecoregion subarea, and Cadiz Valley and Chocolate Mountains ecoregion subarea. • Step-Down Biological Objective CLNB-D: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for California leaf-nosed in the southeastern portion of the Plan Area. • Step-Down Biological Objective CLNB-E: Implement CMAs for Covered Activities that avoid and minimize impacts to California leaf-nosed bat and California leaf-nosed bat habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement roost avoidance requirements for Covered Activities. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species. • Step-Down Biological Objective CLNB-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for California leaf-nosed bat.
25. Mohave Ground Squirrel – <i>Xerospermophilus mohavensis</i> (MGSQ)	<p>Goal MGSQ1: Conserve suitable habitat (see Section C.4) required for the long-term management and conservation of Mohave ground squirrel, excluding habitat within Department of Defense (DOD) installations. Emphasize conservation in 1) Mohave ground squirrel key population centers; 2) habitat linkages and corridors; 3) expansion areas; and 4) areas where Mohave ground squirrel are most likely to be adaptive and resilient in response to the effects of changes within their metapopulation, including range shifts, contractions, or expansions; local extirpation and recolonization; and environmental changes in climate, temperature, and precipitation (climate change extensions) (all referred to as important areas, see</p>	<ul style="list-style-type: none"> • Step-Down Biological Objective MGSQ-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) Mohave ground squirrel habitat in the following areas: <ul style="list-style-type: none"> ◦ Portions of the Little Dixie Wash key population center ◦ Portions of Pilot Knob key population center • Step-Down Biological Objective MGSQ-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative Mohave ground squirrel habitat in the following areas:

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	<p>Figures C-39 and C-40). Emphasize conservation of habitat adjacent to already existing conserved habitat and within habitat blocks surrounded by existing conserved habitat.</p> <ul style="list-style-type: none"> • Objective MGSQ1.1: Conserve and avoid disturbance of suitable habitat in specific geographic regions that are required for Mohave ground squirrel population viability, identified as key population centers. Key population centers are presented in Figure C-39, described by Leitner (2008, 2013), and are listed below:^{1,2} <ul style="list-style-type: none"> ○ Coso Range-Olancha, portion within the DRECP boundary ○ Little Dixie Wash ○ Coolgardie Mesa-Superior Valley, portion outside of the DOD installations (Naval Air Weapons Station China Lake (China Lake) and National Training Center at Fort Irwin (Fort Irwin)) ○ Edwards Air Force Base (EAFB), portion outside of the DOD installation ○ Desert Tortoise Natural Area (DTNA) ○ North of Edwards, originally described by Leitner (2008) and extended by the Kramer-Red Mountain study area detections in Leitner (2013) and by the California City study detections in Leitner (2013a)¹² ○ Pilot Knob ○ Ridgecrest, eastern portion of the population originally described in Leitner (2008) (outside Ridgecrest city limits), and the portion outside of the DOD installation (China Lake) ○ North Searles Valley ○ Harper Lake ○ Fremont Valley/Spangler, described by Leitner (2013) as Fremont Valley/Teagle • Objective MGSQ1.2: Conserve and avoid disturbance of population expansion areas consisting of suitable habitat within 5 miles of key population centers listed in Objective MGSQ1.1 to provide for dispersal, additional connectivity between populations, and preservation of contiguous habitat.³ • Objective MGSQ1.3: Conserve and avoid disturbance of high-priority habitat linkages and corridors important to genetic exchange⁴ between key population centers and other metapopulation functions or for shifts in the Mohave ground squirrel range in response to climatic changes. Conserve linkages in suitable habitat or valleys, passes, or minimally rocky terrain under 5,000 feet. Conserve linkages that are at least 3 miles wide or wider as noted below,⁵ These linkages are presented in Figure C-39 described below, and based on modeled habitat⁶, detection data^{7,8,9}, hypothesized linkages and detections described by Leitner (2008, 2013), and expert opinion^{3,10,11}. <ul style="list-style-type: none"> ○ Owens East and Owens West, connecting Coso Range–Olancha to north Owens Valley, on the east and west sides of Owens Lake ○ West of China Lake, connecting Coso Range–Olancha to Little Dixie Wash ○ South of Ridgecrest, at least 6 miles in width of habitat south of the town of Ridgecrest connecting Little Dixie Wash with Fremont Valley/Spangler and Ridgecrest population centers ○ Ridgecrest–Searles, at least 6 miles in width of habitat south of the Ridgecrest population center connecting the South of Ridgecrest linkage and the Ridgecrest population center to North Searles Valley, along State Route 178 and through Spangler Hills, and including the strip of habitat east of Searles Lake and west of China Lake ○ Central, a 6-mile-wide north–south linkage connecting Fremont Valley/Spangler to North of Edwards, along U.S. 395, with 3-mile-wide linkages extending east through the Almond Cove/Cuddeback Lake area to Pilot Knob and west to DTNA, and a 3-mile-wide linkage connecting Fremont Valley/Spangler southeast to Pilot Knob 	<ul style="list-style-type: none"> ○ Coso Range-Olancha key population center, portion within the DRECP boundary ○ Remainder of the Little Dixie Wash key population center ○ EAFB key population center, portion outside of the DOD installation ○ DTNA key population center ○ Portions of the North of Edwards key population center ○ Fremont Valley/Spangler key population center ○ West of China Lake linkage, connecting Coso Range-Olancha to Little Dixie Wash ○ South of Ridgecrest linkage, connecting Little Dixie Wash with Fremont Valley/Spangler and Ridgecrest population centers ○ Portions of the Central linkage, connecting Fremont Valley/Spangler to North of Edwards, along U.S. 395, and linkages extending east through the Almond Cove/Cuddeback Lake area to Pilot Knob and west to DTNA, and a linkage connecting Fremont Valley/Spangler southeast to Pilot Knob ○ DTNA-Edwards, connecting the southwestern edge of DTNA to the North of Edwards population center ○ Portions of the Pilot-Coolgardie, connecting Pilot Knob to Coolgardie Mesa-Superior Valley ○ Kramer-Harper-Edwards, connecting EAFB to North of Edwards and Harper Lake <ul style="list-style-type: none"> • Step-Down Biological Objective MGSQ-C: Establish long-term conservation to protect, manage, and enhance habitat value for 176,000 acres of Mohave ground squirrel habitat that contributes to the DRECP NCCP Reserve Design in and around the West Mojave and Eastern Slopes ecoregion subarea. • Step-Down Biological Objective MGSQ-D: Maintain and manage for resource values on BLM LUPA conservation designation lands for Mohave ground squirrel in the following areas: <ul style="list-style-type: none"> ○ Remainder of the North of Edwards key population center ○ Coolgardie Mesa-Superior Valley, portion outside of China Lake and Fort Irwin ○ Ridgecrest key population center ○ North of Searles Valley key population center ○ Remainder of Pilot Knob key population center ○ Harper Lake key population center ○ Owens East and Owens West linkage ○ Harper-Coolgardie linkage • Step-Down Biological Objective MGSQ-E: Implement CMAs for Covered Activities that avoid and minimize impacts to Mohave ground squirrel and Mohave ground squirrel habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement roost avoidance requirements for Covered Activities. Additionally, institute and implement over the permit term survey requirements within DFAs. • Step-Down Biological Objective MGSQ-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for Mohave ground squirrel.

Table C-1
DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<ul style="list-style-type: none"> DTNA-Edwards, connecting the southwestern edge of DTNA to the North of Edwards population center Pilot-Coolgardie, connecting Pilot Knob to Coolgardie Mesa-Superior Valley, through Superior Valley Harper-Coolgardie, connecting Harper Lake to Coolgardie Mesa-Superior Valley through habitat north of Harper Lake and south of the Black Hills Kramer-Harper-Edwards, connecting EAFB to North of Edwards and Harper Lake, along the north and east borders of the EAFB installation, on both sides of U.S. 395 and State Route 58 Objective MGSQ1.4: Identify disturbances that cause barriers to Mohave ground squirrel movement within linkages and corridors described in Objective MGSQ1.3, and under the plan of a desert restoration specialist, identify and conserve areas feasible for restoration. Objective MGSQ1.5: Conserve and avoid suitable habitat, within or outside of the historic range of Mohave ground squirrel, that is considered by the best available science and habitat models to be suitable for Mohave ground squirrel occupancy^{6, 10, 11} in the event of range and distribution shifts in response to climate change (climate change extensions). Climate change extensions are presented in Figure C-39 and are described below: <ul style="list-style-type: none"> Habitat and potential future habitat in Owens Valley, up to 40 miles north of Owens Lake (to the northwest boundary of the DRECP) Habitat and potential future habitat west of the Little Dixie Wash population, including low foothills and valleys, from the Scodie Mountains to the north, to the Piute Mountains to the west, to the mountains south of Jawbone Canyon Road Objective MGSQ1.6: Complement DOD efforts to protect Mohave ground squirrel populations and linkages within military installations by conserving suitable habitat adjacent to DOD lands with Mohave ground squirrel populations. Objective MGSQ1.7: Improve, relative to existing standards, knowledge of species distribution and life history to inform future management actions. <p>Goal MGSQ2: Remove or reduce potential threats and environmental stressors to maintain and enhance populations.</p> <ul style="list-style-type: none"> Objective MGSQ2.1: Improve relative to existing conditions Mohave ground squirrel abundance and resilience to climate change throughout its range in the plan area. 	
26. Pallid Bat – <i>Antrozous pallidus</i> (PABA)	<p>Goal PABA1: Conserve, maintain or restore habitats used by pallid bat across its range within the Plan Area, in order to maintain or increase population in the Plan Area.</p> <ul style="list-style-type: none"> Objective PABA1.1: Protect, avoid, and maintain all pallid bat roosts, including all known maternity and hibernacula. Objective PABA1.2: Reduce human disturbance to known roost sites. Objective PABA1.3: Conserve, avoid and restore foraging habitat, including desert wash, riparian and open water sources within commuting distance of roosts. <ul style="list-style-type: none"> Conserve desert wash and riparian vegetation within 5 kilometers of roosts. <p>Goal PABA2: Monitor the conservation status of pallid bat across its range within the Plan Area.</p> <ul style="list-style-type: none"> Objective PABA2.1: Conduct regular censuses of representative maternity colonies and/or hibernacula during the Plan period. Objective PABA2.2: Summarize the conservation status of all known pallid bat roost sites (including mines, natural caves/crevices, buildings, bridges and other anthropogenic roosts) within the Plan Area. 	<ul style="list-style-type: none"> Step-Down Biological Objective PABA-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) pallid bat habitat in the following areas: <ul style="list-style-type: none"> Joshua Tree National Park Mojave National Preserve Death Valley National Park BLM Wilderness Anza-Borrego State Park Step-Down Biological Objective PABA-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative roost sites and suitable habitat for pallid bat. Step-Down Biological Objective PABA-C: Establish long-term conservation to protect, manage, and enhance habitat value for 343,000 acres of pallid bat habitat that contributes to the DRECP NCCP Reserve Design in and around the following areas: West Mojave and Eastern Slopes ecoregion subarea, Pinto Lucerne Valley and Eastern Slopes ecoregion subarea, and Cadiz Valley and Chocolate

Table C-1
DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
		<p>Mountains ecoregion subarea.</p> <ul style="list-style-type: none">• Step-Down Biological Objective PABA-D: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for pallid bat.• Step-Down Biological Objective PABA-E: Implement CMAs for Covered Activities that avoid and minimize impacts to pallid bat and pallid bat habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement roost avoidance requirements for Covered Activities. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species.• Step-Down Biological Objective PABA-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for pallid bat.
27. Townsend’s Big-Eared Bat – <i>Corynorhinus townsendii</i> (TBEB)	<p>Goal TBEB1: Conserve, maintain, or restore habitats used by Townsend’s big-eared bat across its range within the Plan Area, in order to maintain or increase the population within the Plan Area.</p> <ul style="list-style-type: none">• Objective TBEB1.1: Protect, avoid, and maintain Townsend’s big-eared bat roosts, including all maternity roosts and hibernacula.• Objective TBEB1.2: Eliminate human disturbance to known roost sites by installing bat gates.• Objective TBEB1.3: Conserve and avoid foraging habitat, including microphyll woodland, other riparian vegetation, pinyon-juniper woodlands, and open water sources near maternity roosts.<ul style="list-style-type: none">◦ Reduce the threat and spread of invasive plant species such as tamarisk in these areas.◦ Restore or maintain natural understory in these habitats to foster production of arthropod prey base. <p>Goal TBEB2: Monitor the conservation status of Townsend’s big-eared bat across its range within the Plan Area.</p> <ul style="list-style-type: none">• Objective TBEB2.1: Conduct regular censuses of representative maternity colonies and/or hibernacula during the Plan period.• Objective TBEB2.2: Summarize the conservation status of all known Townsend’s big-eared bat roost sites (including mines, natural caves/crevices, buildings, bridges and other anthropogenic roosts) within the Plan Area.	<ul style="list-style-type: none">• Step-Down Biological Objective TBEB-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) Townsend’s big-eared bat habitat in the following areas:<ul style="list-style-type: none">◦ Joshua Tree National Park◦ Mojave National Preserve◦ BLM Wilderness◦ Anza-Borrego State Park• Step-Down Biological Objective TBEB-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative roost sites and suitable habitat Townsend’s big-eared bat.• Step-Down Biological Objective TBEB-C: Establish long-term conservation to protect, manage, and enhance habitat value for 297,000 acres of Townsend’s big-eared bat habitat that contributes to the DRECP NCCP Reserve Design in and around the following areas: West Mojave and Eastern Slopes ecoregion subarea, Pinto Lucerne Valley and Eastern Slopes ecoregion subarea, and Cadiz Valley and Chocolate Mountains ecoregion subarea.• Step-Down Biological Objective TBEB-D: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for Townsend’s big-eared bat• Step-Down Biological Objective TBEB-E: Implement CMAs for Covered Activities that avoid and minimize impacts to Townsend’s big-eared bat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement roost avoidance requirements for Covered Activities. Additionally, institute and implement over the permit term CMAs to avoid and minimize the effects of Covered Activity operations on bird and bat species.• Step-Down Biological Objective TBEB-E: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for Townsend’s big-eared bat.

Table C-1
DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
28. Alkali Mariposa-Lily – <i>Calochortus striatus</i> (AMLI)	<p>Goal AMLI: Maintain or increase the distribution, population size, or number of populations of alkali mariposa-lily and contribute to its recovery in the Plan Area.</p> <ul style="list-style-type: none"> • Objective AMLI1.1: Conserve and avoid known extant populations of alkali mariposa-lily. Occurrences of alkali mariposa-lily are concentrated in the Lancaster area and also in Red Rock State Park. • Objective AMLI1.2: Maintain a hydrological regime that maintains suitable water table levels at each population. • Objective AMLI1.3: Manage land uses and enhance vegetation communities within habitat that supports the species. 	<ul style="list-style-type: none"> • Step-Down Biological Objective AMLI-A: Establish long-term conservation to protect, manage, and enhance habitat value for 800 acres of alkali mariposa-lily habitat that contributes to the DRECP NCCP Reserve Design in and around the West Mojave and Eastern Slopes ecoregion subarea and Pinto Lucerne Valley and Eastern Slopes ecoregion subarea. • Step-Down Biological Objective AMLI-B: Implement CMAs for Covered Activities that avoid and minimize impact to alkali mariposa-lily and alkali mariposa-lily habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement project-level surveys and avoidance with setbacks from occupied habitat. • Step-Down Biological Objective AMLI-C: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for alkali mariposa-lily.
29. Bakersfield Cactus – <i>Opuntia basilaris</i> var. <i>treleasei</i> (BACA)	<p>Goal BACA1: Conserve Bakersfield cactus across its range within the plan area, placing emphasis on conserving modeled habitat and suitable habitat where the species has been detected within the last 20 years and is most likely to be adaptive and resilient in response to the effects of environmental change, including, range shifts, contractions, expansions, local extirpation, and recolonization; as well as changes in climate, temperature, and precipitation.</p> <ul style="list-style-type: none"> • Objective BACA1.1: Conserve suitable Bakersfield cactus habitat within the Plan Area. • Objective BACA1.2: Conserve large contiguous blocks of habitat of at least 160 acres and avoid fragmentation of spatially and genetically distinct clumps.^{2,4} Avoid fragmentation of grouped populations into more than two contiguous blocks, particularly in higher elevations (e.g., Tehachapi foothill populations).⁴ • Objective BACA1.3: Improve, relative to existing standards, knowledge of Bakersfield cactus distribution and life history to inform future management actions. <p>Goal BACA2: Maintain or increase the distribution, population size, or number of clumps and populations of Bakersfield cactus to contribute to its recovery in the Plan Area.</p> <ul style="list-style-type: none"> • Objective BACA1.1: Increase the number of clumps within each population to at least 100. • Objective BACA1.2: Conserve and avoid known extant populations of Bakersfield cactus. Examples of populations in the Plan Area include but are not limited to^{1,3}: <ul style="list-style-type: none"> ◦ The population west of Mojave, north of Oak Creek Road (35.0540000, -118.3106667, 35.0499167, -118.3523500, 35.0164667, -118.3289333) ◦ Tehachapi foothills, near the west antelope station, north of the California Aqueduct, and east of the Pacific Crest Trail (34.90863, -118.44587; 34.90969, -118.36376) ◦ Tehachapi foothills, near the junction of Trotter Avenue and 120th Street (34.96542, -118.36376; 34.97113, -118.36678) ◦ Tehachapi foothills, Oak Creek Pass, south of State Route 58 and Tehachapi-Willow Road (35.05443, -118.39714) <p>Goal BACA3: Remove or reduce potential threats and environmental stressors to maintain and enhance populations.</p> <ul style="list-style-type: none"> • Objective BACA3.1: Improve relative to existing conditions, Bakersfield cactus abundance and resilience to climate change throughout its range in the plan area. 	<ul style="list-style-type: none"> • Step-Down Biological Objective BACA-A: Establish long-term conservation to protect, manage, and enhance habitat value for 22,000 acres of Bakersfield cactus habitat that contributes to the DRECP NCCP reserve design in and around the following areas: West Mojave and Eastern Slopes ecoregion subarea, Pinto Lucerne Valley and Eastern Slopes ecoregion subarea, and Cadiz Valley and Chocolate Mountains ecoregion subarea. • Step-Down Biological Objective BACA-B: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for Bakersfield cactus in the Tehachapi Mountains area of the West Mojave and Eastern Slopes ecoregion subarea. • Step-Down Biological Objective BACA-C: Implement CMAs for Covered Activities that avoid and minimize impacts on Bakersfield cactus and Bakersfield cactus habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement project-level surveys and avoidance with setbacks from occupied habitat. • Step-Down Biological Objective BACA-D: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for Bakersfield cactus.

Table C-1
DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
30. Barstow Woolly Sunflower – <i>Eriophyllum mohavense</i> (BWSU)	<p>Goal BWSU1: Maintain or increase the distribution, population size, or number of populations of Barstow woolly sunflower and contribute to its recovery in the Plan Area. Place conservation emphasis in areas where species are most likely to be adaptive and resilient in response to the effects of environmental change, including range shifts, contractions, expansions, local extirpation, and recolonization, as well as changes in climate, temperature, and precipitation.</p> <ul style="list-style-type: none"> • Objective BWSU1.1: Conserve and avoid known extant populations of Barstow woolly sunflower. • Objective BWSU1.2: Manage land uses and enhance vegetation communities within habitat that supports the species. <p>Goal BWSU2: Improve knowledge of species distribution and life history to inform future management actions.</p> <ul style="list-style-type: none"> • Objective BWSU2.1: Perform surveys for Barstow woolly sunflower within targeted and modeled suitable habitats with a high probability of occupancy in the Plan Area to identify and document new populations of the species. • Objective BWSU2.2: Assess recruitment rates across the known populations and determine if this is a limiting factor in the species’ recovery. • Objective BWSU2.3: Conduct research on seed bank ecology across the known populations to better understand patch dynamics within each population. Include an assessment of the presence, abundance, longevity, and viability of the seed banks. • Objective BWSU2.4: Conduct greenhouse experiments to determine the feasibility of propagating and outplanting Barstow woolly sunflower to aid in restoration efforts, when necessary. • Objective BWSU2.5: Conduct pollinator studies. • Objective BWSU2.6: Incorporate the results of population-level and demographic research on the species into management and conservation actions. 	<ul style="list-style-type: none"> • Step-Down Biological Objective BWSU-A: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative habitat for the Barstow woolly sunflower in the population concentration around Kramer Junction. • Step-Down Biological Objective BWSU-B: Establish long-term conservation to protect, manage, and enhance habitat value for 34,000 acres of Barstow woolly sunflower habitat that contributes to the DRECP NCCP Reserve Design in and around the West Mojave and Eastern Slopes ecoregion subarea. • Step-Down Biological Objective BWSU-C: Implement CMAs for Covered Activities that avoid and minimize impacts to Barstow woolly sunflower and Barstow woolly sunflower habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement project-level surveys and avoidance with setbacks from occupied habitat. • Step-Down Biological Objective BWSU-D: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for Barstow woolly sunflower.
31. Desert Cymopterus – <i>Cymopterus deserticola</i> (DECY)	<p>Goal DECY1: Maintain or increase the distribution, population size, or number of populations of desert cymopterus and contribute to its recovery in the Plan Area.</p> <ul style="list-style-type: none"> • Objective DECY1.1: Conserve and avoid known extant populations of desert cymopterus. The majority of the known desert cymopterus occurrences are located in wind deposited sand, generally near a large source of sand such as a dry lake bed. The largest populations are found east of Cuddeback Dry Lake and on or near Edwards Air Force Base. • Objective DECY1.2: Manage land uses and enhance vegetation communities within habitat that supports the species. • Objective DECY1.3: Protect habitat between known populations in order to improve their long-term viability. • Objective DECY1.4: Survey for new populations using habitat modeling and field verification. 	<ul style="list-style-type: none"> • Step-Down Biological Objective DECY-A: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative habitat for the desert cymopterus in population concentration around Kramer Junction. • Step-Down Biological Objective DECY-B: Establish long-term conservation to protect, manage, and enhance habitat value for 3,000 acres of desert cymopterus habitat that contributes to the DRECP NCCP Reserve Design in and around the West Mojave and Eastern Slopes ecoregion subarea. • Step-Down Biological Objective DECY-C: Implement CMAs for Covered Activities that avoid and minimize impacts to desert cymopterus and desert cymopterus habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement project-level surveys and avoidance with setbacks from occupied habitat. • Step-Down Biological Objective DECY-D: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for desert cymopterus.
32. Little San Bernardino Mountains Linanthus – <i>Linanthus</i>	<p>Goal LSBL1: Maintain or increase the distribution, population size, or number of populations of Little San Bernardino Mountains linanthus and contribute to its recovery in the Plan Area with emphasis on conservation in areas where species and natural communities are most likely to be adaptive and resilient in</p>	<ul style="list-style-type: none"> • Step-Down Biological Objective LSBL-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) Little San Bernardino Mountains linanthus habitat in the following areas: <ul style="list-style-type: none"> ◦ Joshua Tree National Park

Table C-1
DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
<i>maculatus</i> (LSBL)	<p>response to the effects of environmental changes in climate, temperature, and precipitation, including range shifts, contractions, expansions, local extirpation and recolonization.</p> <ul style="list-style-type: none"> • Objective LSBL1.1: Conserve and avoid known extant populations of Little San Bernardino Mountains linanthus. Conservation of known extant populations should be prioritized in the following areas (BLM et al. 2005): <ul style="list-style-type: none"> ◦ Areas between Highway 62 and the northern boundary of Joshua Tree National Park from the west edge of the City of Twentynine Palms to the community of Joshua Tree west of Park Avenue; ◦ In the Copper Mountain Mesa area; and ◦ In Rattlesnake Canyon and Two Hole Spring on the northern edge of the San Bernardino Mountains. • Objective LSBL1.2: Protect the function and condition of drainages and fluvial processes that support the hydrological regime in occupied wash system habitats by precluding disturbance. 	<ul style="list-style-type: none"> ◦ Portions of the Bighorn Mountains Wilderness, including Rattlesnake Canyon • Step-Down Biological Objective LSBL-B: Establish long-term conservation to protect, manage, and enhance habitat value for 14,000 acres of Little San Bernardino Mountains linanthus habitat that contributes to the DRECP NCCP Reserve Design in and around the Pinto Lucerne Valley and Eastern Slopes ecoregion subarea. • Step-Down Biological Objective LSBL-C: Implement CMAs for Covered Activities that avoid and minimize impacts to Little San Bernardino Mountains linanthus and Little San Bernardino Mountains linanthus habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement project-level surveys and avoidance with setbacks from occupied habitat. • Step-Down Biological Objective LSBL-D: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for Little San Bernardino Mountains linanthus.
33. Mojave Monkeyflower – <i>Mimulus mohavensis</i> (MOMO)	<p>Goal MOMO1: Maintain or increase the distribution, population size, or number of populations of Mojave monkeyflower and contribute to its recovery in the Plan Area. Place conservation emphasis in areas where species are most likely to be adaptive and resilient in response to the effects of environmental change, including range shifts, contractions, expansions, local extirpation and recolonization, as well as changes in climate, temperature, and precipitation.</p> <ul style="list-style-type: none"> • Objective MOMO1.1: Avoid and conserve known extant populations of Mojave monkeyflower. • Objective MOMO1.2: Manage land uses and enhance vegetation communities within habitat that supports the species in the Plan Area. <p>Goal MOMO2: Improve knowledge of species distribution and life history to inform future management actions.</p> <ul style="list-style-type: none"> • Objective MOMO2.1: Perform surveys for Mojave monkeyflower within targeted habitats in the Plan Area to identify and document new populations of the species. • Objective MOMO2.2: Assess recruitment rates across the known populations to determine if this is a limiting factor in the species’ recovery. • Objective MOMO2.3: Conduct research on seed bank ecology across the known populations to better understand patch dynamics within each population. Conduct an assessment of the presence and abundance and longevity and viability of the seed banks. • Objective MOMO2.4: Conduct greenhouse experiments to determine the feasibility of propagating and outplanting Mojave monkeyflower to aid in restoration efforts, when necessary. • Objective MOMO2.5: Conduct pollinator studies. 	<ul style="list-style-type: none"> • Step-Down Biological Objective MOMO-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) Mojave monkeyflower habitat in the following areas: <ul style="list-style-type: none"> ◦ Joshua Tree National Park ◦ Portions of the Bighorn Mountains Wilderness • Step-Down Biological Objective MOMO-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative habitat for the Mojave monkeyflower in the following areas: <ul style="list-style-type: none"> ◦ Brisbane Valley, including the BLM Brisbane Valley Mojave Monkeyflower ACEC Unit ◦ Daggett Ridge Mojave Monkeyflower ACEC Unit, south of Barstow • Step-Down Biological Objective MOMO-C: Establish long-term conservation to protect, manage, and enhance habitat value for 9,000 acres of Mojave monkeyflower habitat that contributes to the DRECP NCCP Reserve Design in and around the following areas: West Mojave and Eastern Slopes ecoregion subarea and Pinto Lucerne Valley and Eastern Slopes ecoregion subarea. • Step-Down Biological Objective MOMO-D: Implement CMAs for Covered Activities that avoid and minimize impacts to Mojave monkeyflower and Mojave monkeyflower habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement project-level surveys and avoidance with setbacks from occupied habitat. • Step-Down Biological Objective MOMO-E: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for Mojave monkeyflower.
34. Mojave Tarplant – <i>Deinandra mohavensis</i> (MOTA)	<p>Goal MOTA1: Contribute to the recovery of the Mojave tarplant by protecting, enhancing, and managing habitat and promoting the ecosystem functions that maintain the species throughout the Plan Area.</p> <ul style="list-style-type: none"> • Objective MOTA1.1: Conserve and avoid known extant populations of Mojave tarplant. Occurrences of Mojave tarplant are located in the West Mojave and Eastern Slopes ecoregion subarea. Specifically, 	<ul style="list-style-type: none"> • Step-Down Biological Objective MOTA-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) Mojave tarplant habitat, including the following areas: <ul style="list-style-type: none"> ◦ Portions of Kelso Valley ◦ Portions of Jawbone Canyon

Table C-1
DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<p>occurrences are located west of Highway 14 and east of the Sequoia National Forest, near Cutterbank Spring west of Jawbone Canyon, near Indian Spring east of Olancho Pass, in Grapevine Canyon, in Kelso Valley, in Jawbone Canyon, in Short Canyon, in lower Esperanza Canyon, in lower Water Canyon, and in the vicinity of Cross Mountain.</p> <ul style="list-style-type: none">• Objective MOTA1.2: At known occurrences, preserve the hydrological connections that support the seasonally saturated soils and high summer water table that provide suitable habitat for Mojave tarplant.• Objective MOTA1.3: Manage land uses and enhance vegetation communities within habitat that supports the species.	<ul style="list-style-type: none">○ Portions of Esperanza Canyon○ Portions of Short Canyon○ Portions of Water Canyon• Step-Down Biological Objective MOTA-B: Protect, maintain, and manage for the duration of the NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative habitat for the Mojave tarplant in the following areas:<ul style="list-style-type: none">○ Portions of Kelso Valley○ Portions of Jawbone Canyon○ Portions of Short Canyon• Step-Down Biological Objective MOTA-C: Establish long-term conservation to protect, manage, and enhance habitat value for 25,000 acres of Mojave tarplant habitat that contributes to the DRECP NCCP Reserve Design in and around the West Mojave and Eastern Slopes ecoregion subarea.• Step-Down Biological Objective MOTA-D: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for Mojave tarplant in the Tehachapi Mountains area of the West Mojave and Eastern Slopes ecoregion subarea.• Step-Down Biological Objective MOTA-E: Implement CMAs for Covered Activities that avoid and minimize impacts to Mojave tarplant and Mojave tarplant habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement project-level surveys and avoidance with setbacks from occupied habitat.• Step-Down Biological Objective MOTA-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for Mojave tarplant.
35. Owens Valley Checkerbloom – <i>Sidalcea covillei</i> (OVCH)	<p>Goal OVCH1: Maintain or increase the distribution, population size, or number of populations of Owens Valley checkerbloom and contribute to its recovery in the Plan Area with emphasis on conservation in areas where species and natural communities are most likely to be adaptive and resilient in response to the effects of environmental changes in climate, temperature, and precipitation, including range shifts, contractions, expansions, local extirpation, and recolonization.</p> <ul style="list-style-type: none">• Objective OVCH1.1: Conserve and avoid known extant populations of Owens Valley checkerbloom. Owens Valley checkerbloom is endemic to the Owens River Valley ecoregion subarea.• Objective OVCH1.2: Maintain the groundwater-sustained water table that supports the mesic meadow conditions required by Owens Valley checkerbloom at target sites in the Owens Valley.• Objective OVCH1.3: Manage land use and enhance vegetation communities within habitat that supports the species.	<ul style="list-style-type: none">• Step-Down Biological Objective OVCH-A: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for Owens Valley checkerbloom in alkali meadow and seep communities of the Owens River Valley ecoregion subarea.• Step-Down Biological Objective OVCH-B: Implement CMAs for Covered Activities that avoid and minimize impacts to Owens Valley checkerbloom and Owens Valley checkerbloom habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement project-level surveys and avoidance with setbacks from occupied habitat.• Step-Down Biological Objective OVCH-C: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for Owens Valley checkerbloom.
36. Parish’s Daisy – <i>Erigeron parishii</i> (PADA)	<p>Goal PADA1: Protect essential habitats, including federally designated critical habitat, and maintain stable populations of Parish’s daisy where they occur within the Plan Area. Place conservation emphasis in areas where species are most likely to be adaptive and resilient in response to the effects of environmental change, including range shifts, contractions, expansions, local extirpation, and recolonization, as well as changes in climate, temperature, and precipitation. The majority of the reserve lands for the carbonate plant</p>	<ul style="list-style-type: none">• Step-Down Biological Objective PADA-A: Protect and maintain in Existing Conservation Areas (LLPAs and MEMLs) Parish’s daisy habitat, including the following areas:<ul style="list-style-type: none">○ Joshua Tree National Park○ Portions of the Bighorn Mountains Wilderness, including Rattlesnake Canyon• Step-Down Biological Objective PADA-B: Protect, maintain, and manage for the duration of the

Table C-1
DRECP Biological Goals and Objectives

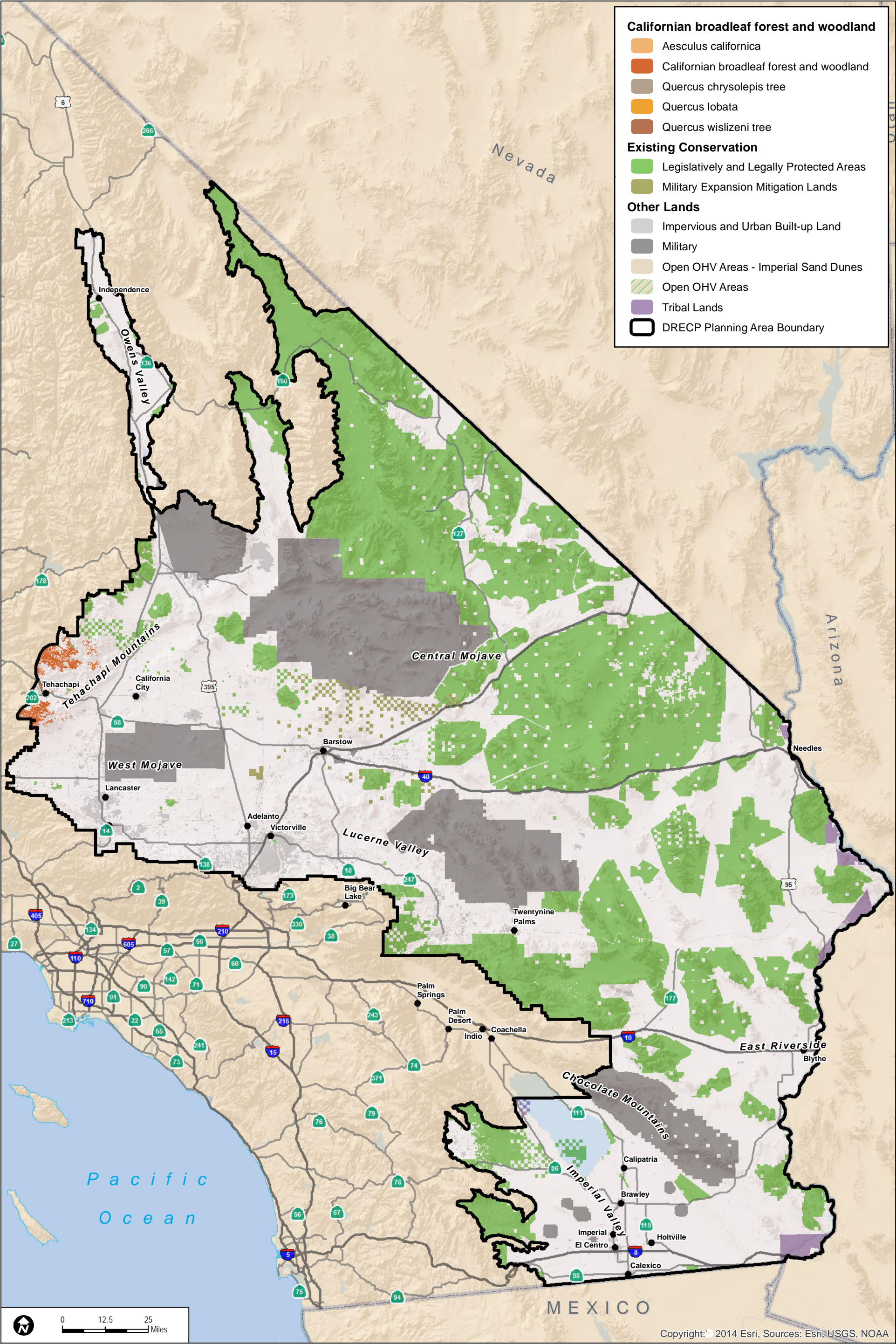
Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<p>species will extend outside of the Plan Area; therefore, the identification and subsequent acquisition of priority reserve lands should be coordinated with the appropriate land management agencies and stakeholders implementing the draft recovery plan and Carbonate Habitat Management Strategy.</p> <ul style="list-style-type: none">• Objective PADA1.1: Assess population stability through regular monitoring and/or habitat management programs designed to capture early detection of population instability or other problems in the reserve. Monitoring efforts should be designed such that the status of the species can be evaluated as well as the effectiveness of conservation actions. Habitat management should focus on working with partners to identify and prioritize conservation actions and avoidance of new developments in or near occupied habitats (USFWS 2009a, b).• Objective PADA1.2: Avoid impacts from Covered Activities to known extant populations of Parish’s daisy with setbacks to allow for the expansion of populations.<ul style="list-style-type: none">◦ Priority areas are those listed in the draft recovery plan and reiterated in the 5-year reviews for the carbonate species that are within Plan Area: (1) upper Crystal Creek Drainage, (2) prioritized populations in the lower Furnace Canyon area, (3) lower Cushenbury Canyon, (4) Round Mountain, (5) Rattlesnake Canyon, and (6) the outlying populations of Parish’s daisy in the Little San Bernardino Mountains.• Objective PADA1.3: Conserve and avoid federally designated critical habitat identified for Parish’s daisy (USFWS 2002) within the Plan Area. <p>Goal PADA2: Protect suitable habitat and maintain habitat connectivity within and among populations within the Plan Area.</p> <ul style="list-style-type: none">• Objective PADA2.1: Conserve and avoid carbonate plant habitat in the northeastern San Bernardino Mountains foothills of the Plan Area, which provides suitable habitat for Parish’s daisy.• Objective PADA2.2: Identify and verify important areas of habitat connectivity within and adjacent to the Plan Area. Once verified, conserve habitat linkages in the Plan Area. <p>Goal PADA3: Maintain the physical and biological environment within which these taxa have evolved through habitat restoration and population enhancement, if determined to be appropriate and feasible.</p> <ul style="list-style-type: none">• Objective PADA3.1: Identify target areas for restoration of carbonate plant communities, including areas with degraded soil and vegetation conditions.<ul style="list-style-type: none">◦ Conduct greenhouse experiments to determine the feasibility of propagating and reintroducing individuals into targeted habitats.◦ Use Parish’s daisy propagules in revegetation efforts.◦ Restore where necessary geomorphic processes that provide a supply of carbonate material derived from upstream or upslope limestone, dolomite, or quartz monzonite parent rock. <p>Goal PADA4: Decrease the area or mileage of roads in carbonate plant habitat within the DRECP reserve.</p> <ul style="list-style-type: none">• Objective PADA4.1: Identify and quantify redundant and damaging routes within Parish’s daisy habitat in the DRECP reserve.• Objective PADA4.2: Close and reclaim routes determined to be detrimental to conservation and recovery of the Parish’s daisy. <p>Goal PADA5: Improve knowledge of species distribution and life history to inform future management actions.</p> <ul style="list-style-type: none">• Objective PADA5.1: Perform surveys for Parish’s daisy within targeted suitable/modeled habitats in the Plan Area to identify and document new populations of the species.• Objective PADA5.2: Assess plant demographics, population dynamics, and factors limiting recovery of this species, such as seed bank ecology and recruitment rates. Close collaboration with the San	<p>NCCP on BLM LUPA conservation designation lands and prioritize for conservation on non-BLM lands substantial representative habitat for the Parish’s daisy in the following areas:</p> <ul style="list-style-type: none">◦ Old Woman Springs◦ Carbonate Endemic Plants Research Natural Area <ul style="list-style-type: none">• Step-Down Biological Objective PADA-C: Establish long-term conservation to protect, manage, and enhance habitat value for 18,000 acres of Parish’s daisy habitat that contributes to the DRECP NCCP Reserve Design in and around the Pinto Lucerne Valley and Eastern Slopes ecoregion subarea.• Step-Down Biological Objective PADA-D: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for Parish’s daisy in the Pinto Lucerne Valley and Eastern Slopes ecoregion subarea.• Step-Down Biological Objective PADA-E: Implement CMAs for Covered Activities that avoid and minimize impacts to Parish’s daisy and Parish’s daisy habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement project-level surveys and avoidance with setbacks from occupied habitat.• Step-Down Biological Objective PADA-F: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contribute to meeting the Plan-wide BGOs for Parish’s daisy.

Table C-1
DRECP Biological Goals and Objectives

Resource	Plan-Wide Biological Goals and Objectives	Step-Down Biological Objectives
	<p>Bernardino National Forest is necessary.</p> <ul style="list-style-type: none">○ Conduct an assessment of the presence and abundance and longevity and viability of the seed banks○ Store seed from the four known populations in a long-term seed storage facility sponsored by the Center for Plant Conservation to hedge against local extirpations. <p>• Objective PADA5.3: Incorporate the results of population-level and demographic research on the species into management and conservation actions.</p>	
37. Triple-Ribbed Milk-Vetch – <i>Astragalus tricarlinatus</i> (TRMV)	<p>Goal TRMV1: Maintain or increase the distribution, population size, or number of populations of triple-ribbed milk-vetch and contribute to its recovery in the Plan Area with emphasis on conservation in areas where species and natural communities are most likely to be adaptive and resilient in response to the effects of environmental changes in climate, temperature and precipitation, including range shifts, contractions, expansions, local extirpation and recolonization. Management and conservation actions for triple-ribbed milk-vetch in the Plan Area should be consistent with and complementary to any existing conservation plans currently in place, including the Coachella Valley Multiple Species Habitat Conservation Plan (CVAG 2007) and the West Mojave Plan (BLM et al. 2005), and with the strategy identified for the two known source populations (Wathier Landing and Catclaw Flat).</p> <p>• Objective TRMV1.1: Conserve and avoid known extant populations of triple-ribbed milk-vetch. Populations of triple-ribbed milk-vetch in the DRECP Plan Area include the following:</p> <ul style="list-style-type: none">○ The major populations in Dry Morongo Canyon;○ Smaller populations in the Little San Bernardino Mountains at Coyote Hole Spring on the periphery of the DRECP Plan Area <p>• Objective TRMV1.2: Improve knowledge of species distribution and life history to inform future management actions.</p> <ul style="list-style-type: none">○ Conduct surveys upstream of triple-ribbed milk-vetch deme/waif occurrences to identify source populations and preserve integrity of wash systems upstream of deme/waif occurrences to assist in the identification of potential source populations.○ Perform surveys at extant occurrences to acquire demographic and survival information related to abundance.○ Perform predictive GIS modeling involving source soil type in search of new source populations. Use descriptive parameters of more recently detected upland occurrences to assemble predictive maps of likely habitat.○ Assess the germination biology, pollination ecology, edaphic (soil conditions) preferences, seed longevity, disturbance ecology, and mycorrhizal or <i>Rhizobium</i> requirements of triple-ribbed milk-vetch (Amsberry and Meinke 2007, as cited in USFWS 2009).	<p>• Step-Down Biological Objective TRMV-A: Protect and maintain in Existing Conservation Areas (<i>LLPAs and MEMLs</i>) triple-ribbed milk-vetch habitat in the following areas:</p> <ul style="list-style-type: none">○ San Gorgonio Wilderness○ Portions of Dry Morongo Canyon <p>• Step-Down Biological Objective TRMV-B: Maintain and manage for resource values on BLM LUPA conservation designation lands habitat for triple-ribbed milk-vetch in the Pinto Lucerne Valley and Eastern Slopes ecoregion subarea.</p> <p>• Step-Down Biological Objective TRMV-C: Implement CMAs for Covered Activities that avoid and minimize impacts to triple-ribbed milk-vetch and triple-ribbed milk-vetch habitat. Institute and implement over the permit term avoidance and minimization CMAs, including survey requirements and standards, seasonal restrictions, worker education, and DRECP standard practices for hydrology, soils, weed management, habitat restoration, fire prevention/protection, and siting and design. Additionally, institute and implement project-level surveys and avoidance with setbacks from occupied habitat.</p> <p>• Step-Down Biological Objective TRMV-D: Implement monitoring and adaptive management, as part of the DRECP MAMP, for compliance with and effectiveness of the Step-Down Biological Objectives that contributes to meeting the Plan-wide BGOs for triple-ribbed milk-vetch.</p>

¹ Width identified in The Linkage Network for the California Deserts (Penrod et al. 2012).
² Suitable, intact habitat is defined as any habitat known to contain desert tortoises or desert tortoise sign based on past surveys, any habitat found to contain desert tortoises or desert tortoise sign during pre-project surveys, or any habitat containing a habitat potential 0.2 or greater based on (Nussear et al. 2009) (see Figure C-5).
³ Tortoise Conservation Areas, including those identified above, are defined in the recovery plan for the Mojave population of the desert tortoise (USFWS 2011).

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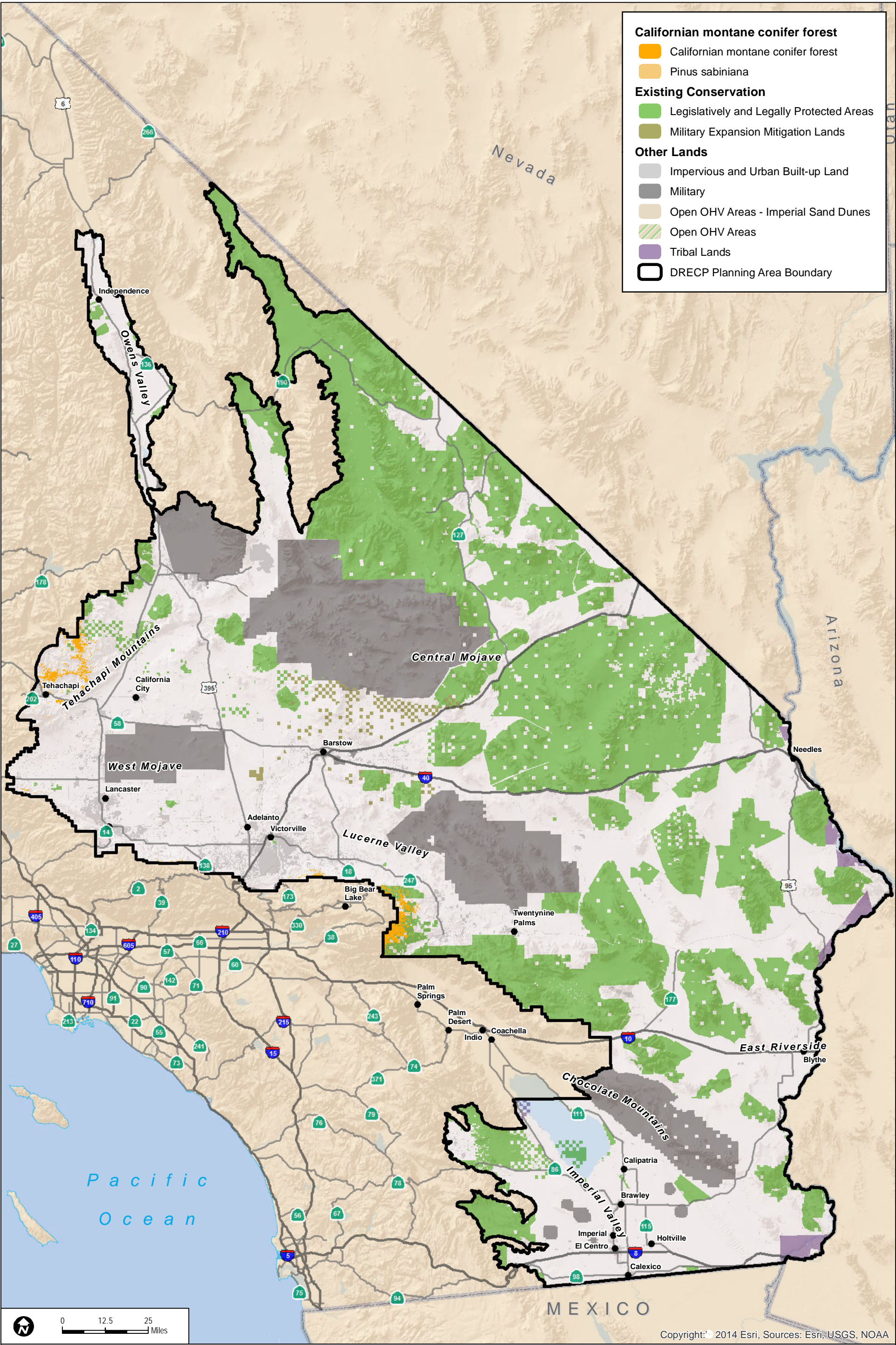


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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FIGURE C-1
Californian Broadleaf Forest and Woodland (CBFW)

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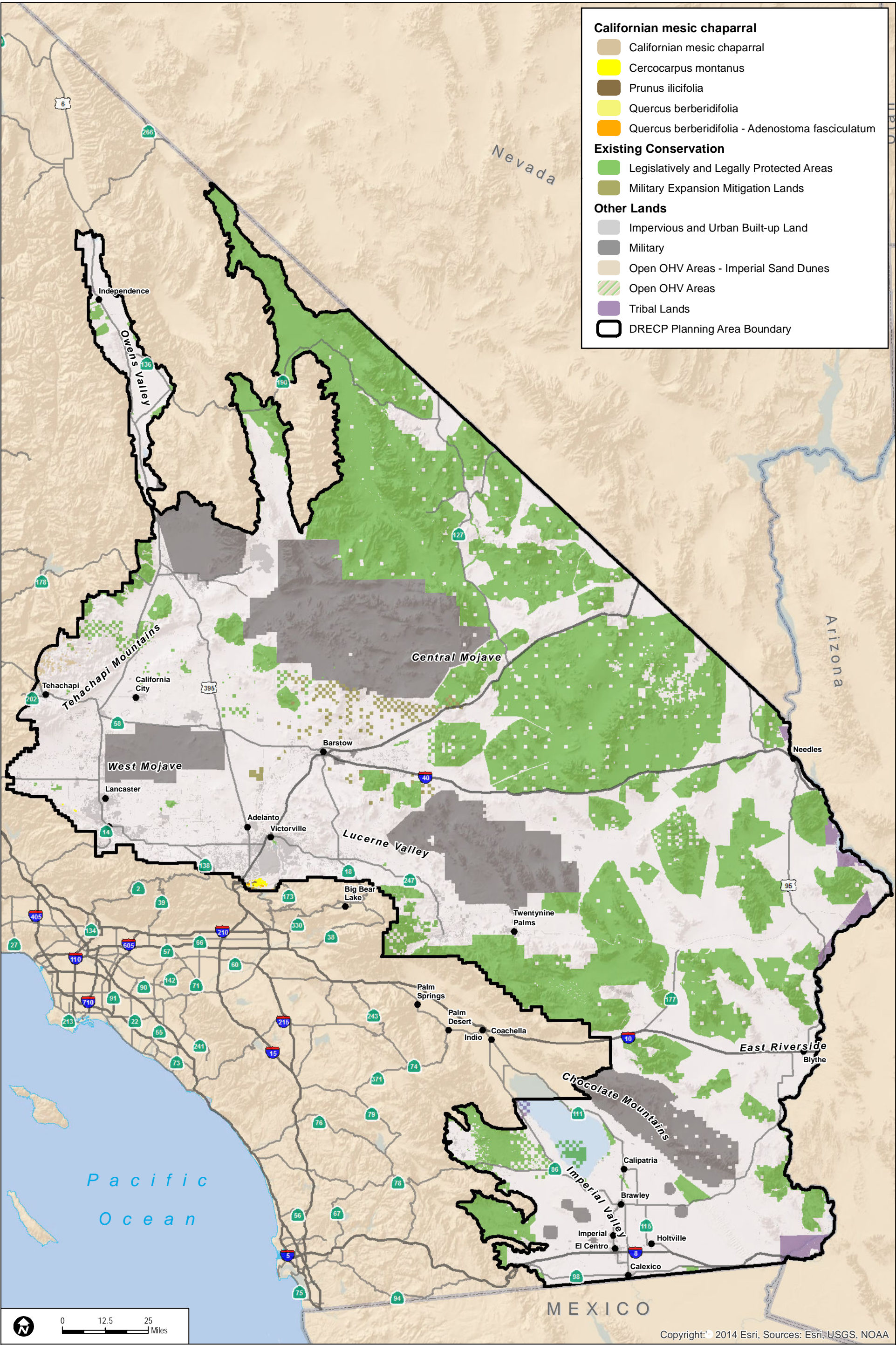


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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FIGURE C-2
Californian Montane Conifer Forest (CMCF)

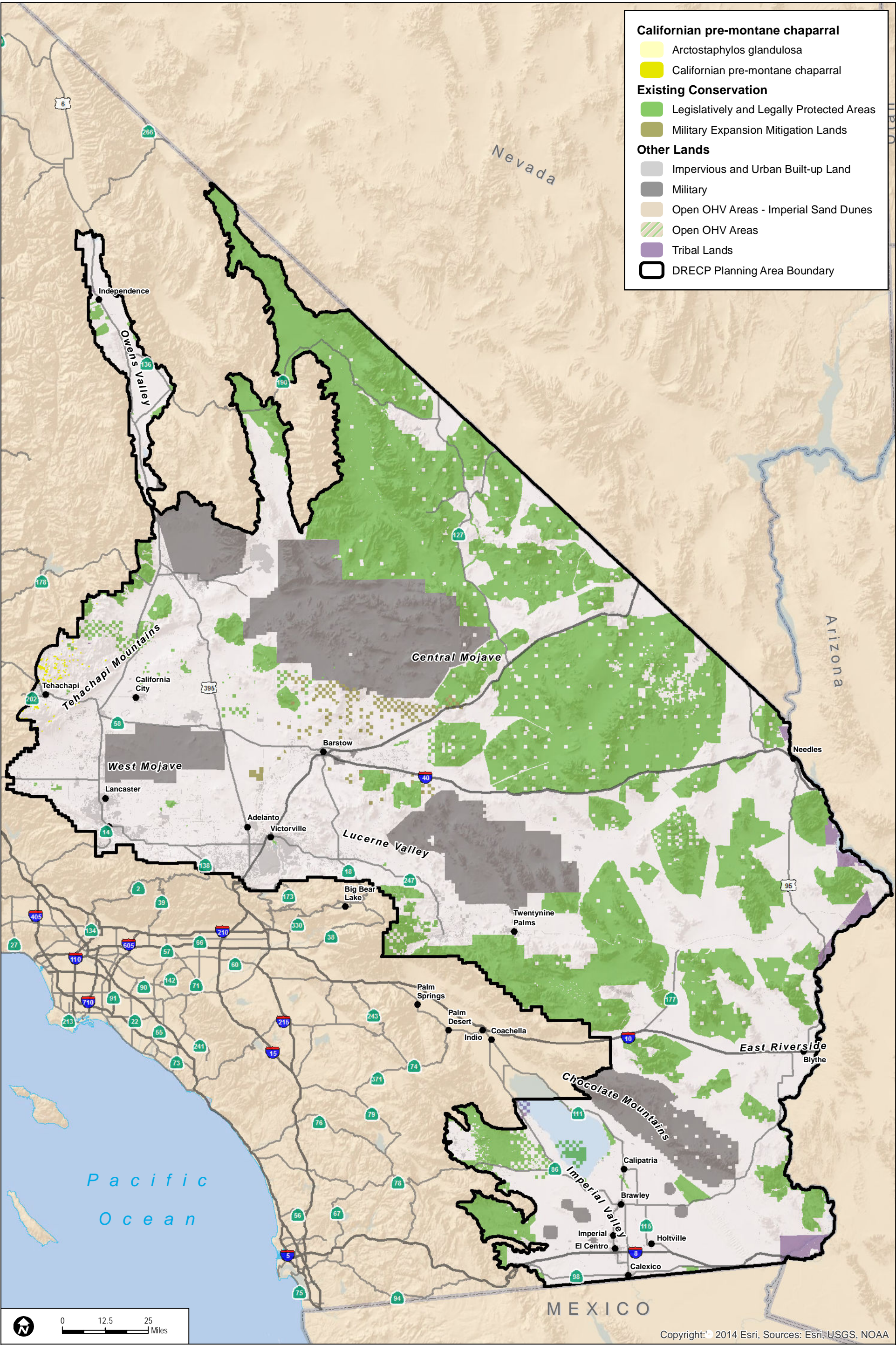
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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE C-3
Californian Mesic Chaparral (CMCH)

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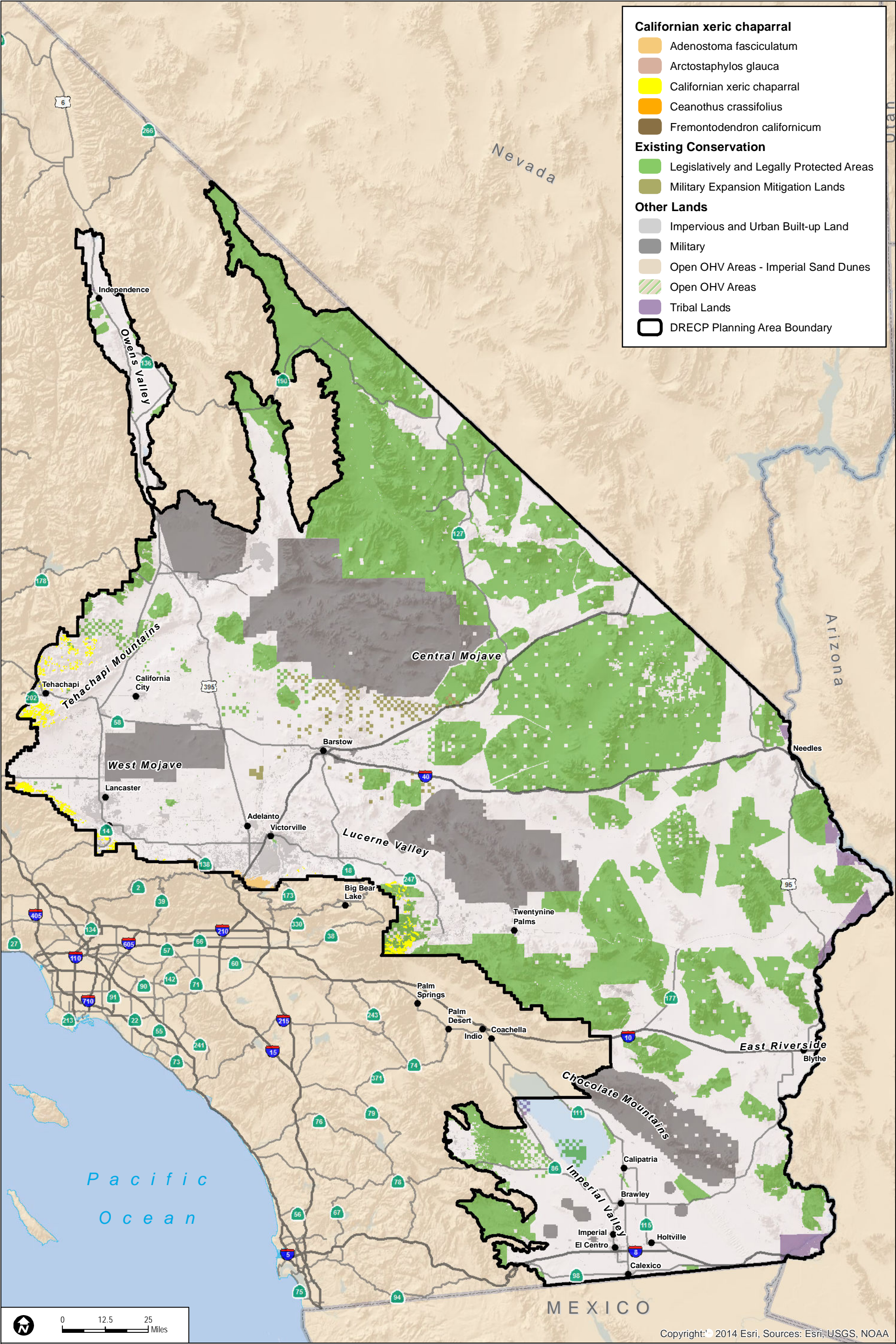


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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FIGURE C-4
Californian Pre-Montane Chaparral (CPMC)

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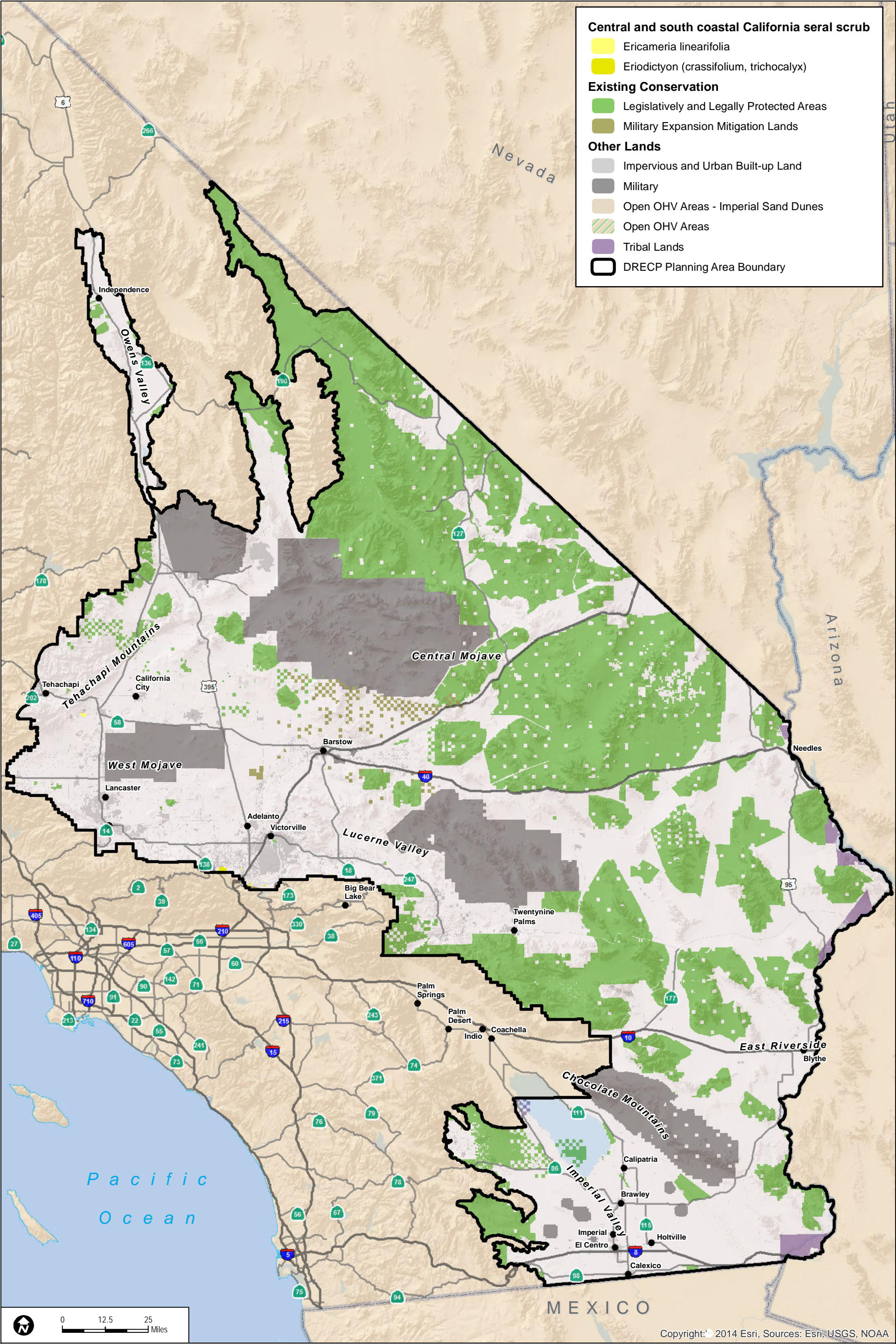


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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FIGURE C-5
Californian Xeric Chaparral (CXCH)

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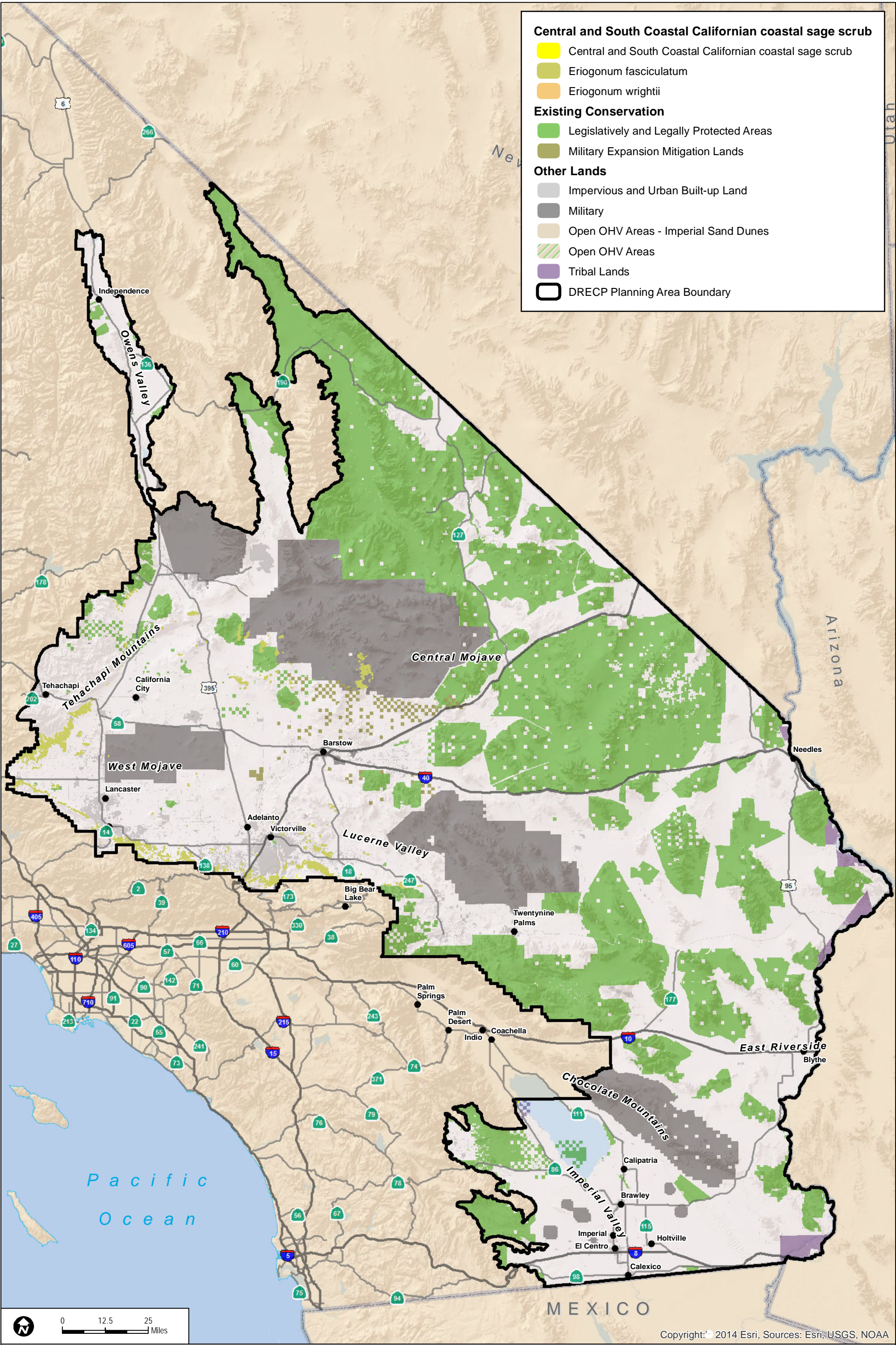


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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FIGURE C-6
Central and South Coastal California Seral Scrub (CSSS)

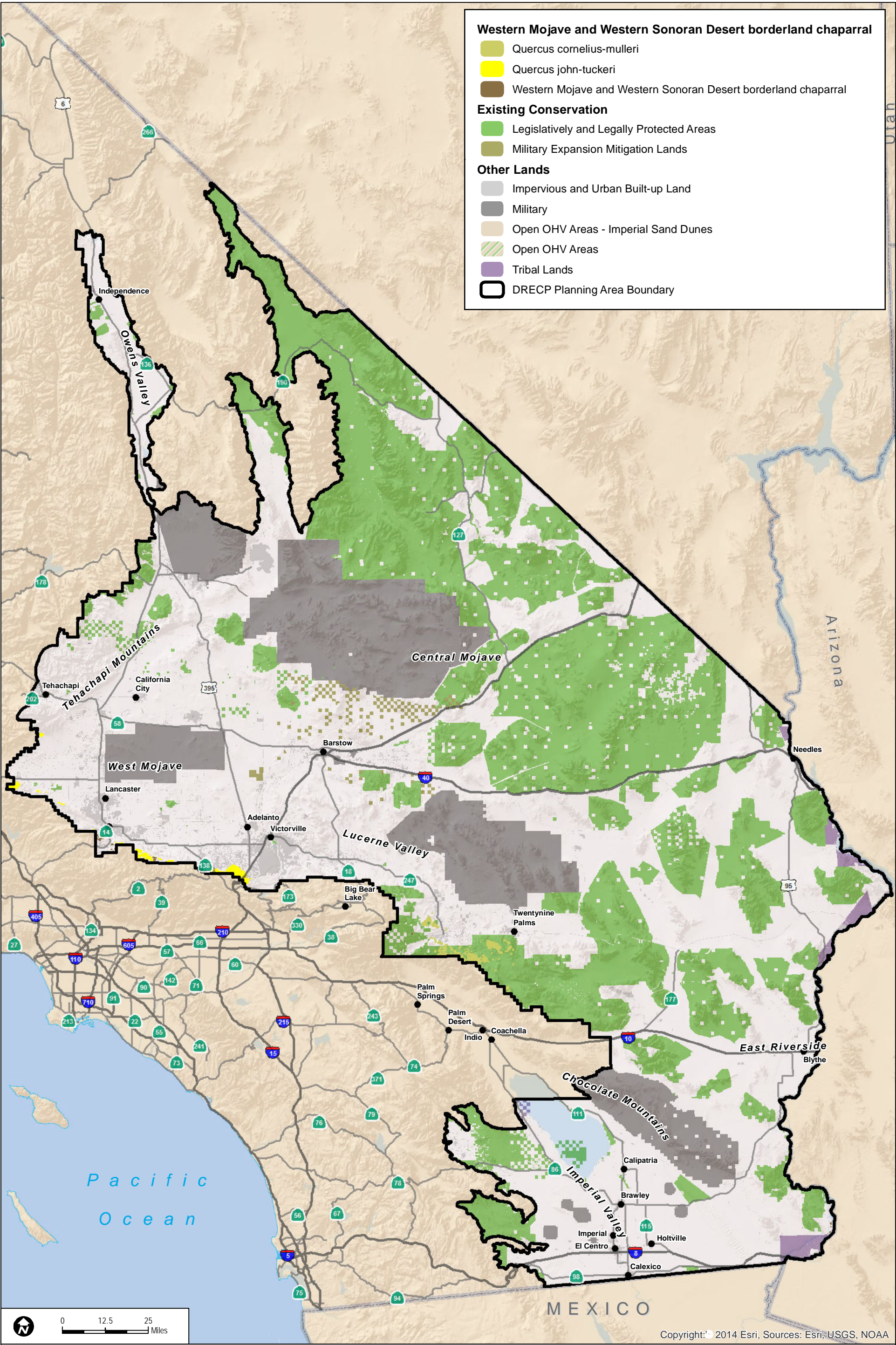
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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE C-7
Central and South Coastal Californian Coastal Sage Scrub (CSCS)

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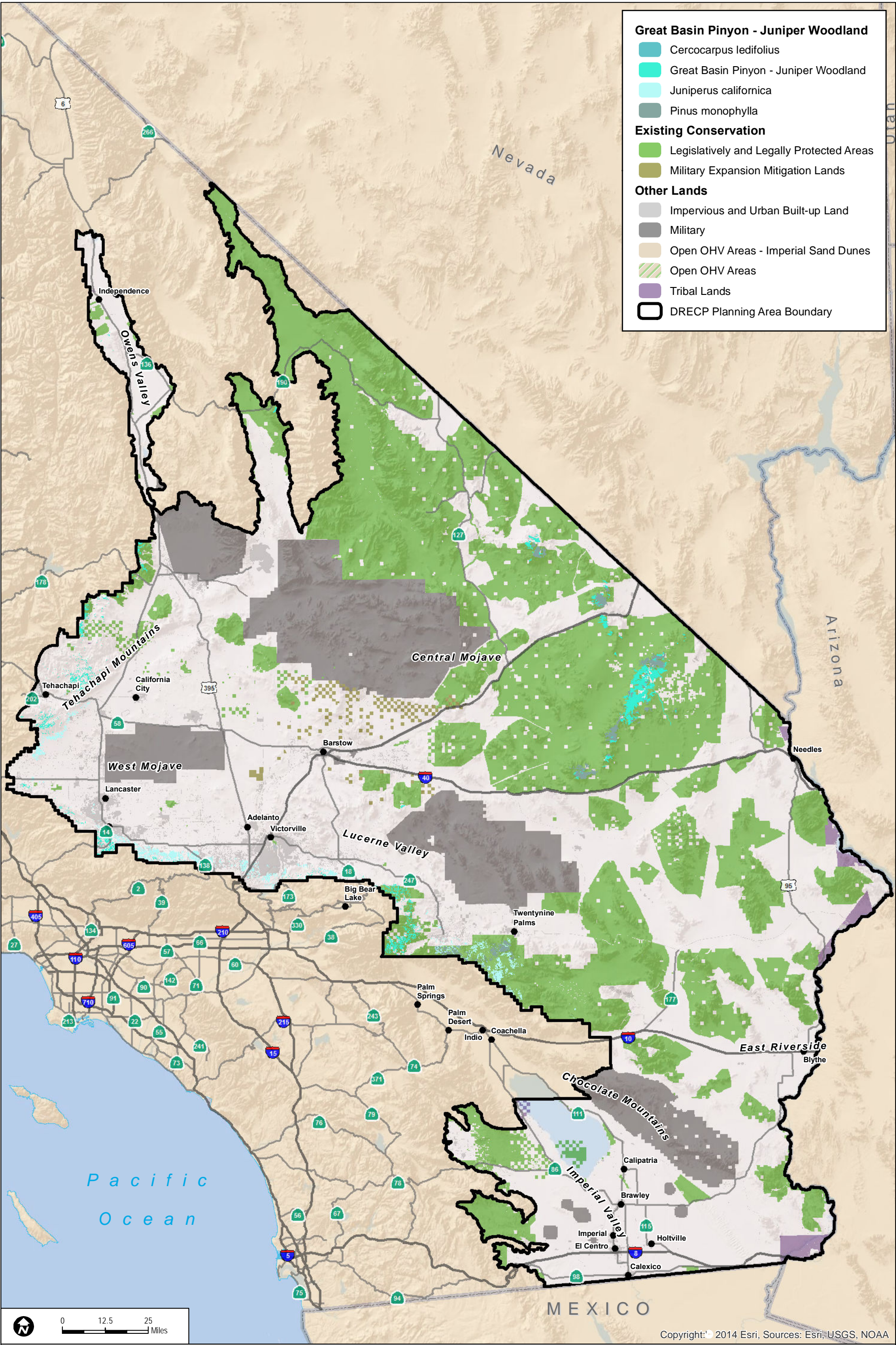
Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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FIGURE C-8

Western Mojave and Western Sonoran Desert Borderland Chaparral (WDBC)

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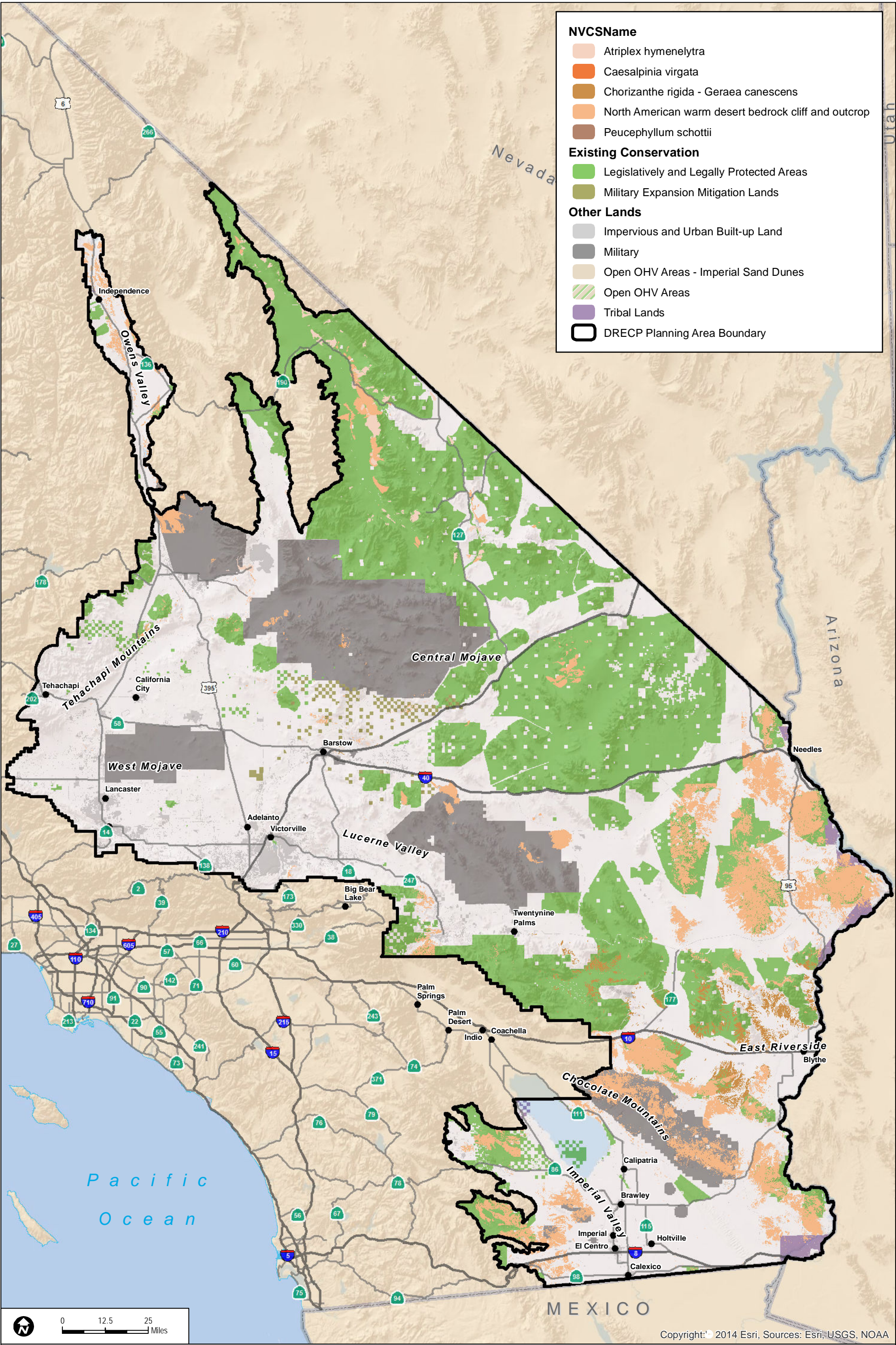


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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FIGURE C-9
Great Basin Pinyon-Juniper Woodland (GPJW)

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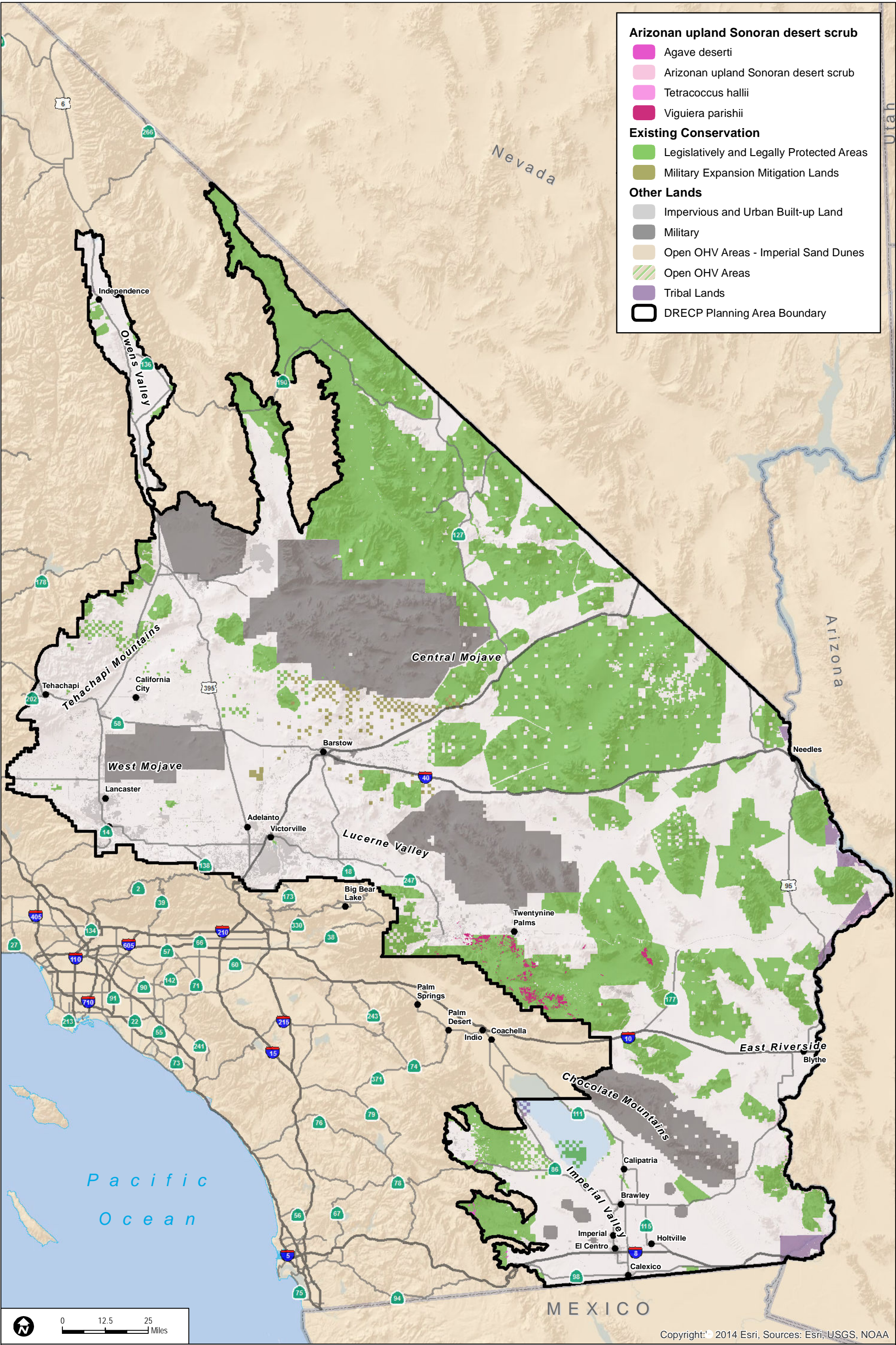


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE C-10

North American Warm Desert Bedrock Cliff and Outcrop (NBCO)

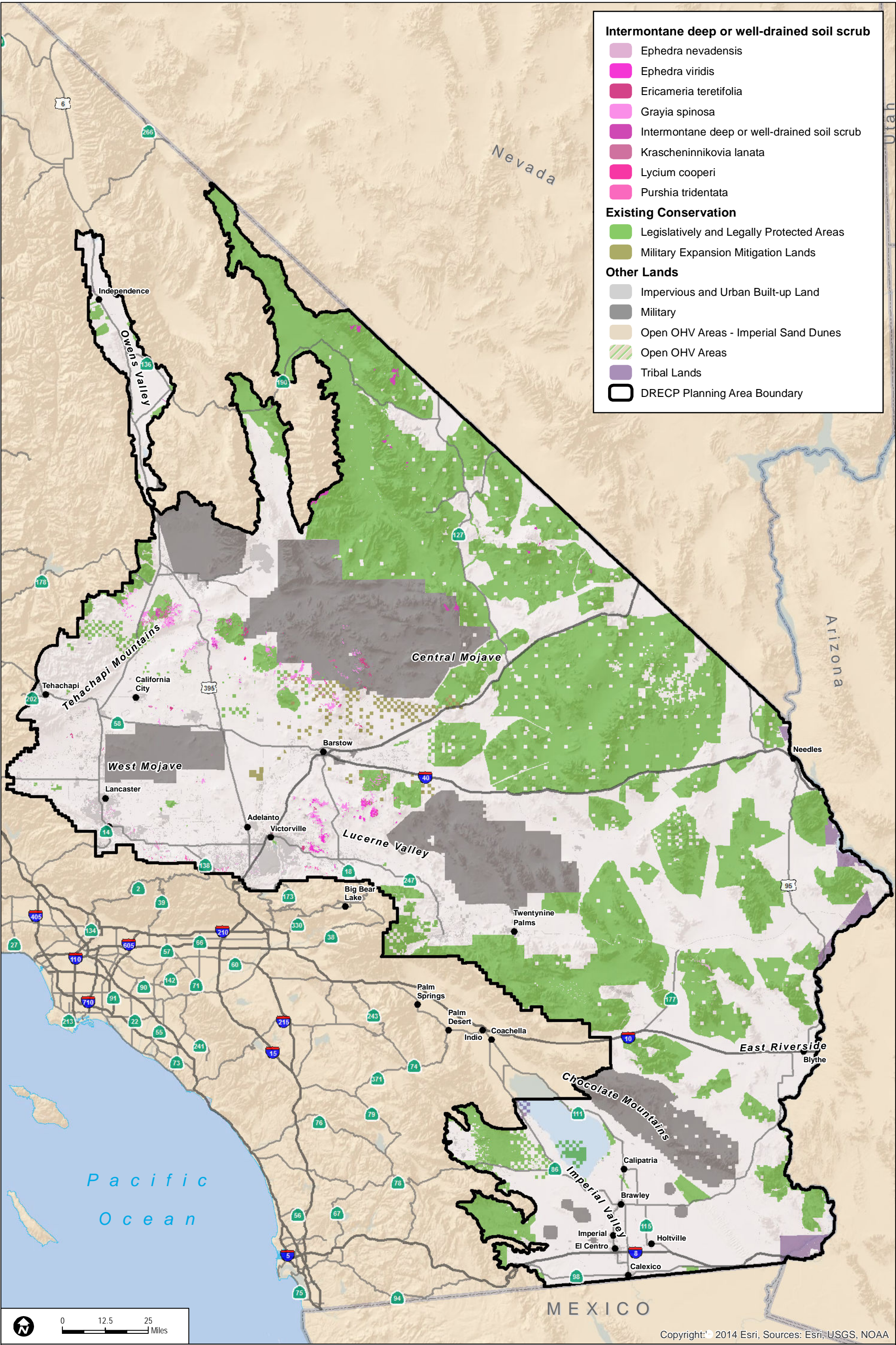
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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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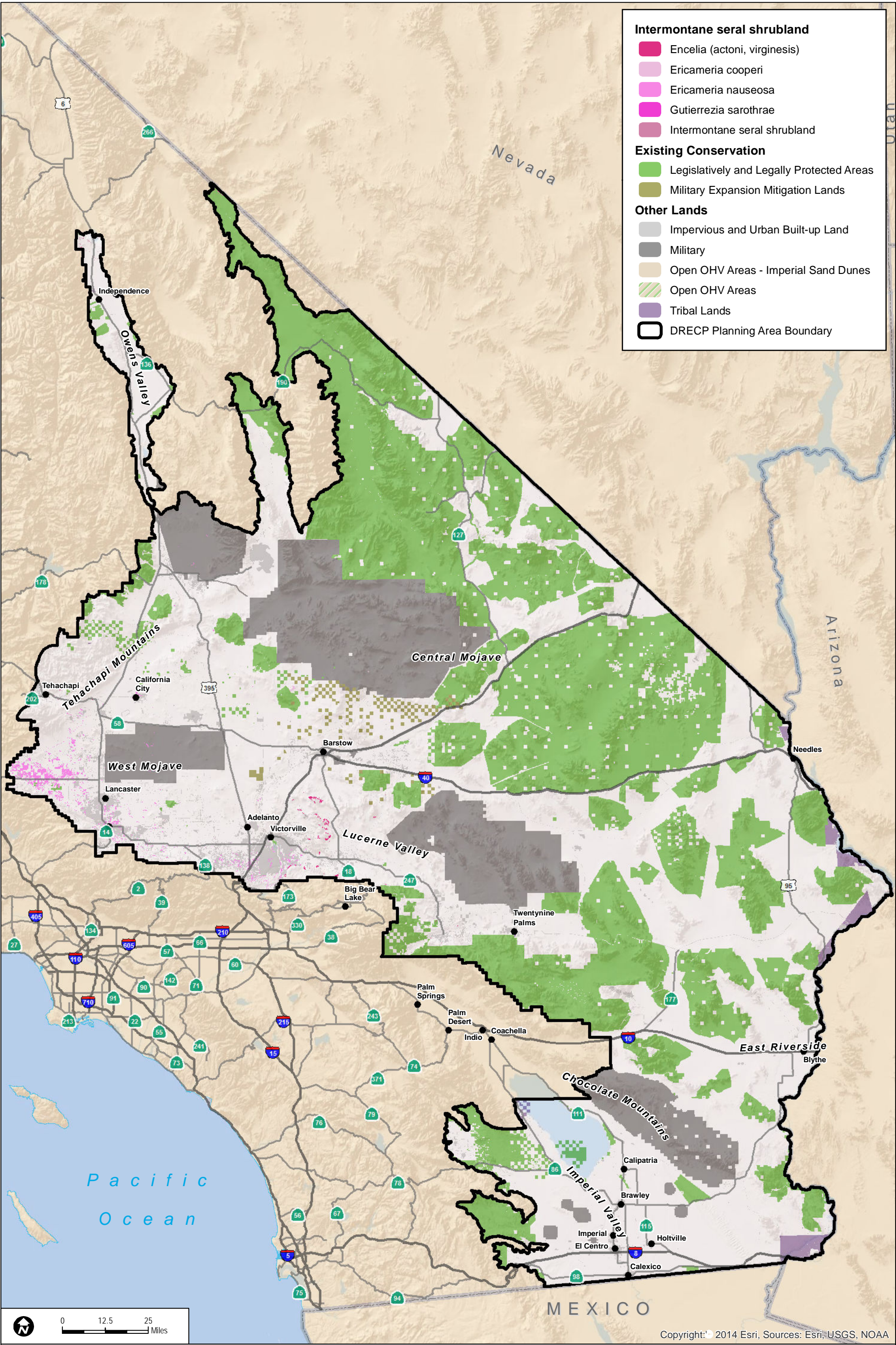
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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE C-12
Intermontane Deep or Well-Drained Soil Scrub (IDSS)

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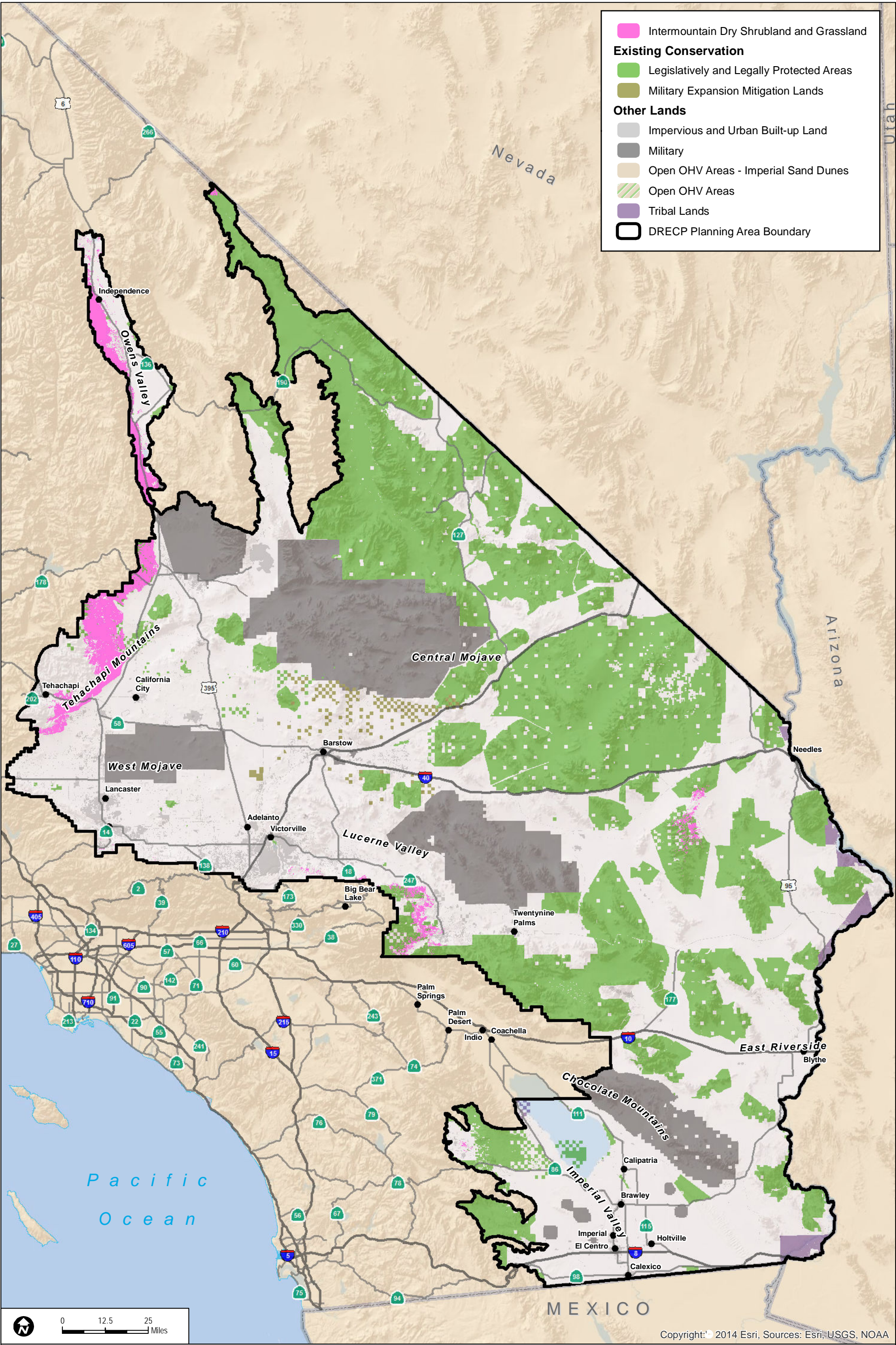


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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FIGURE C-13
Intermontane Seral Shrubland (IMSS)

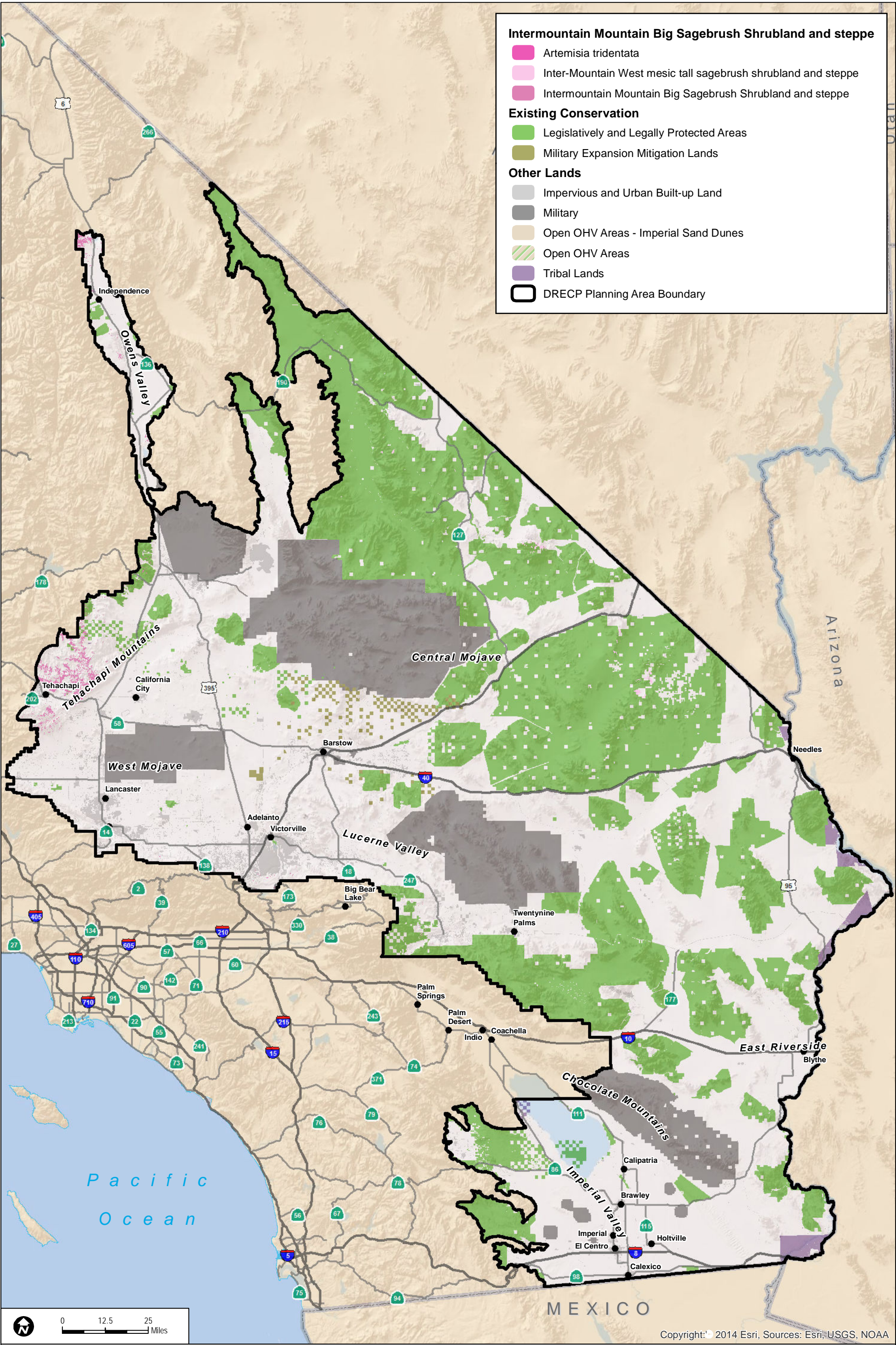
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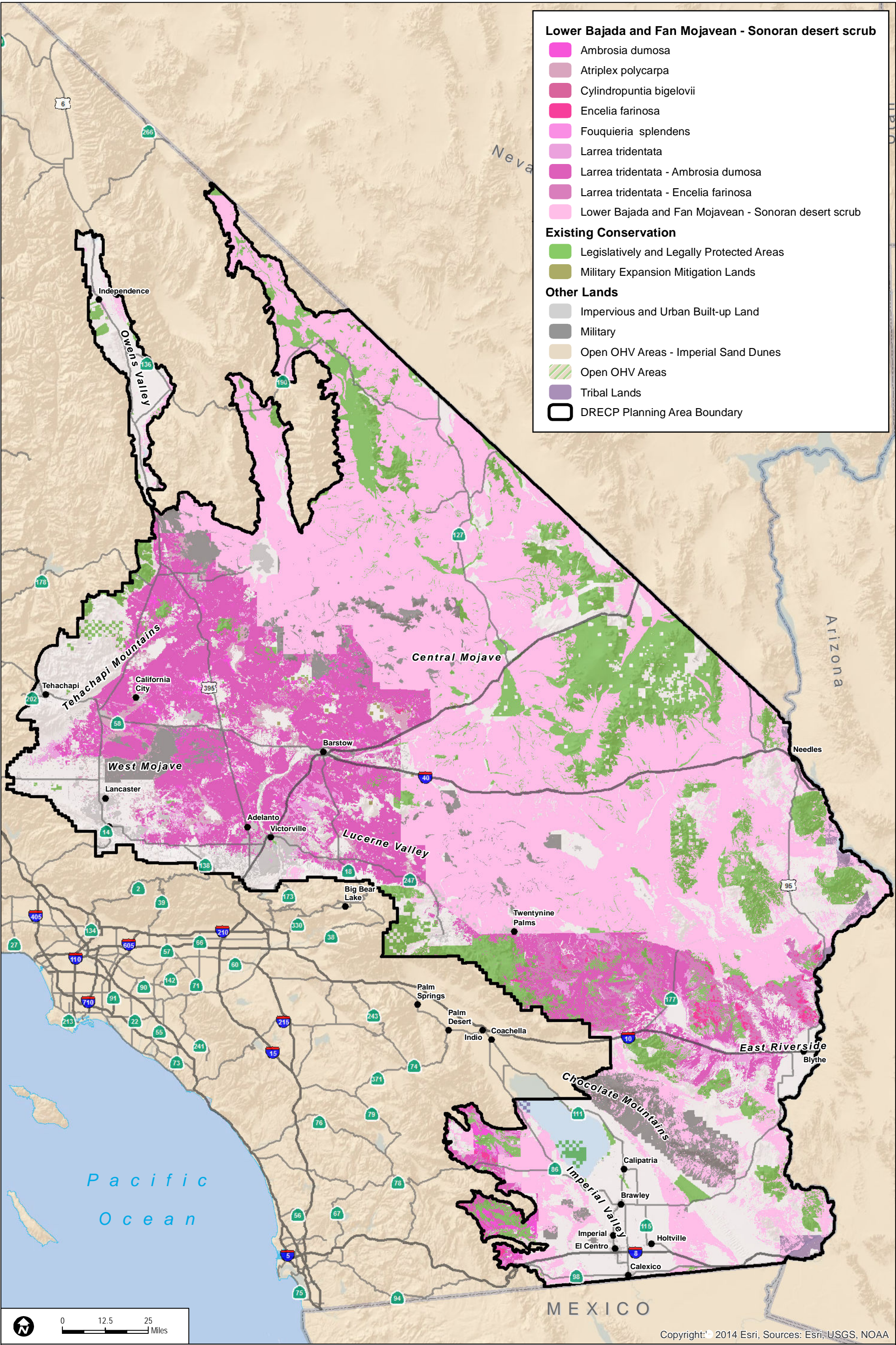


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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FIGURE C-15
Intermountain Mountain Big Sagebrush Shrubland and Steppe (IMBS)

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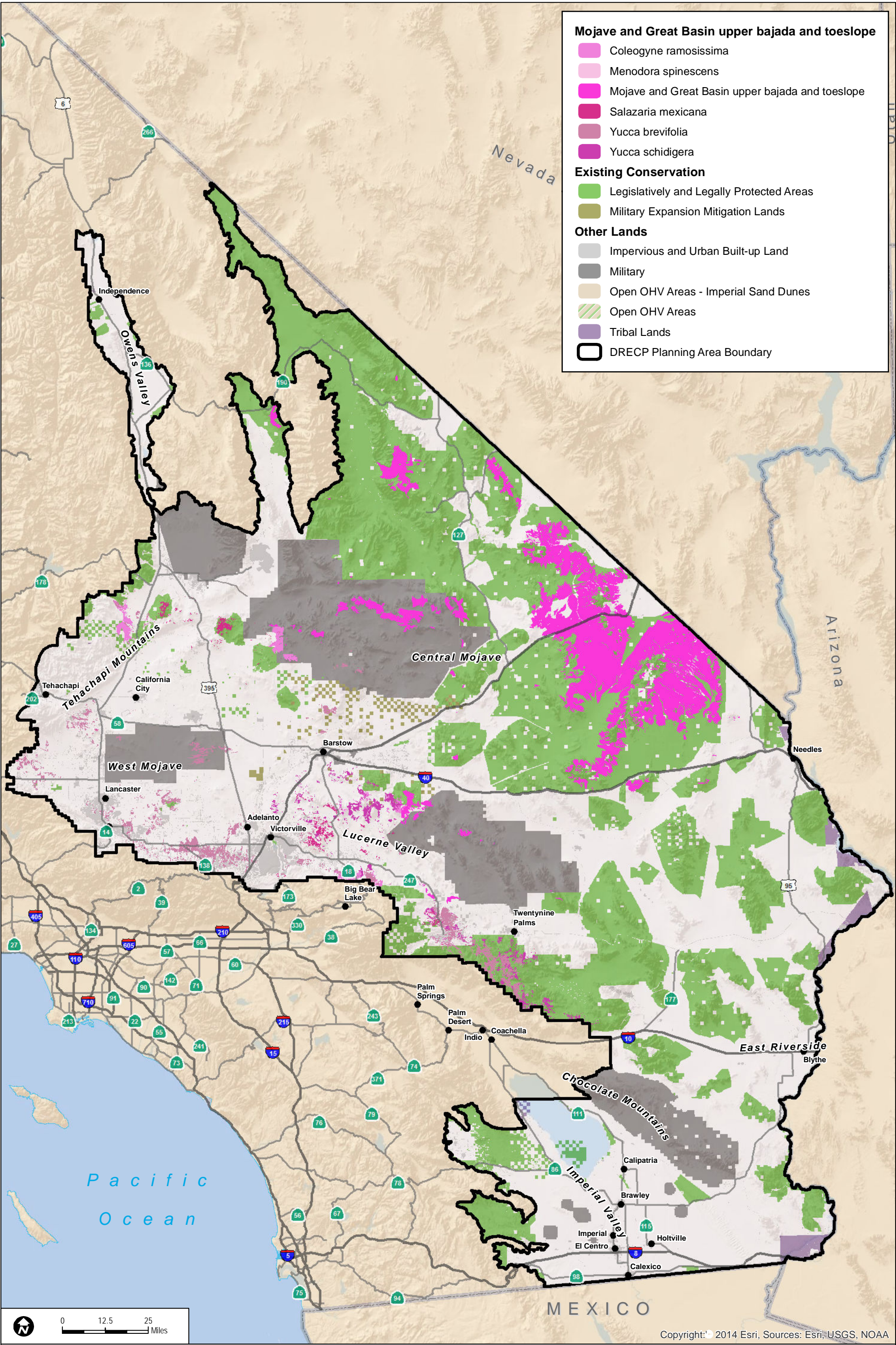
Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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FIGURE C-16

Lower Bajada and Fan Mojavean-Sonoran Desert Scrub (LBFS)

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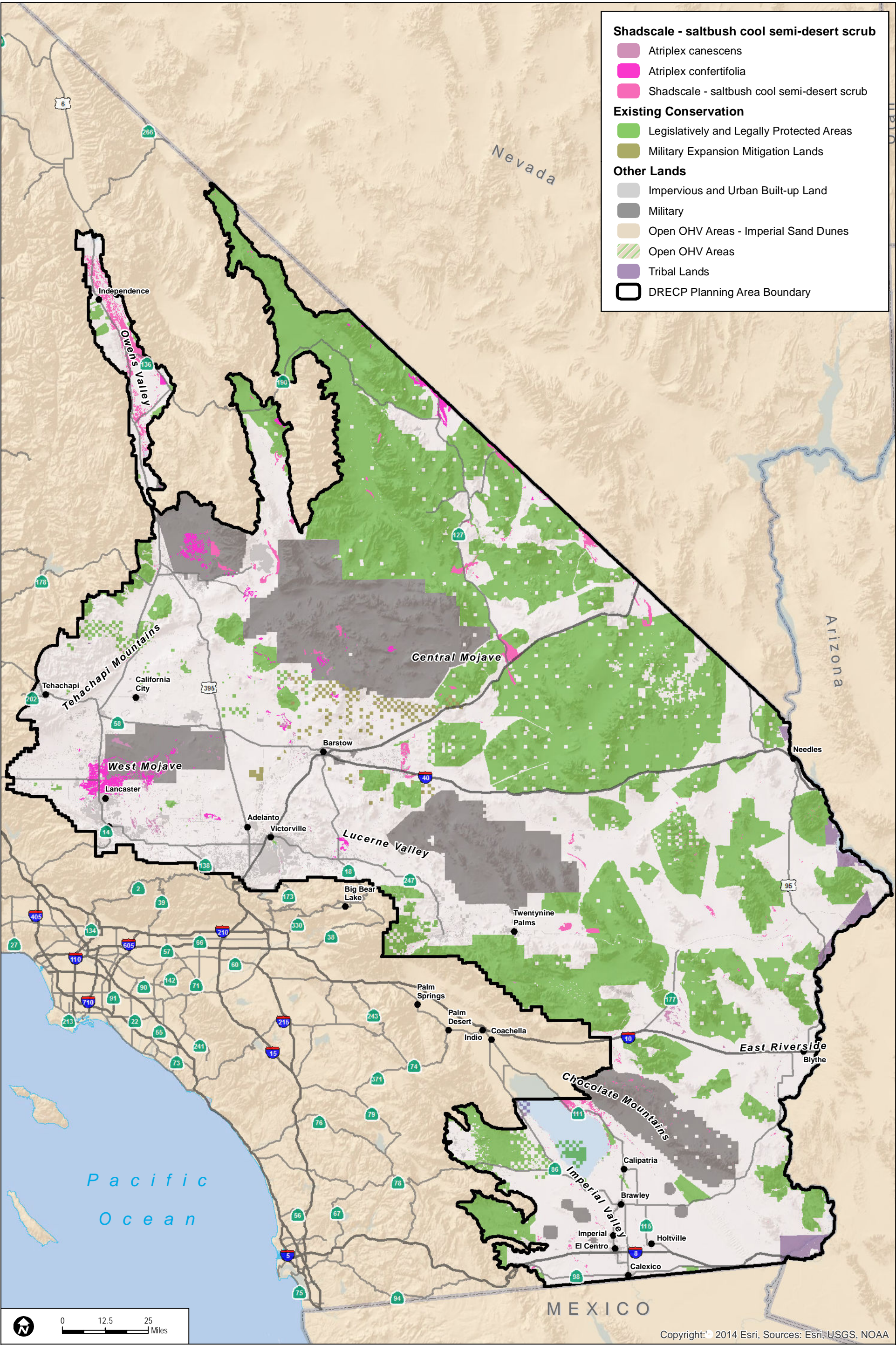


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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FIGURE C-17
Mojave and Great Basin Upper Bajada and Toeslope (MGUT)

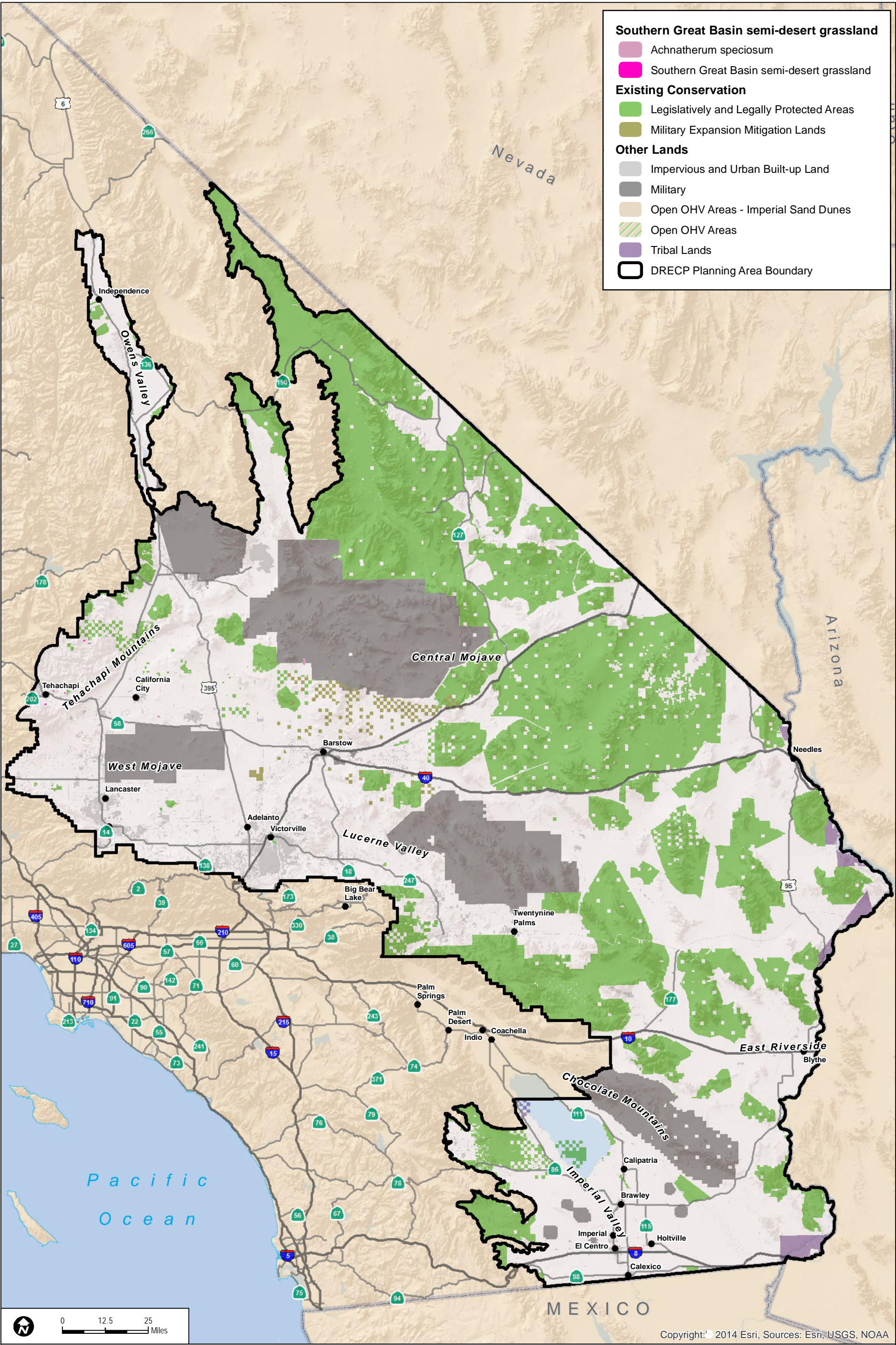
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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE C-18
Shadescale-Saltbush Cool Semi-Desert Scrub (SSCS)

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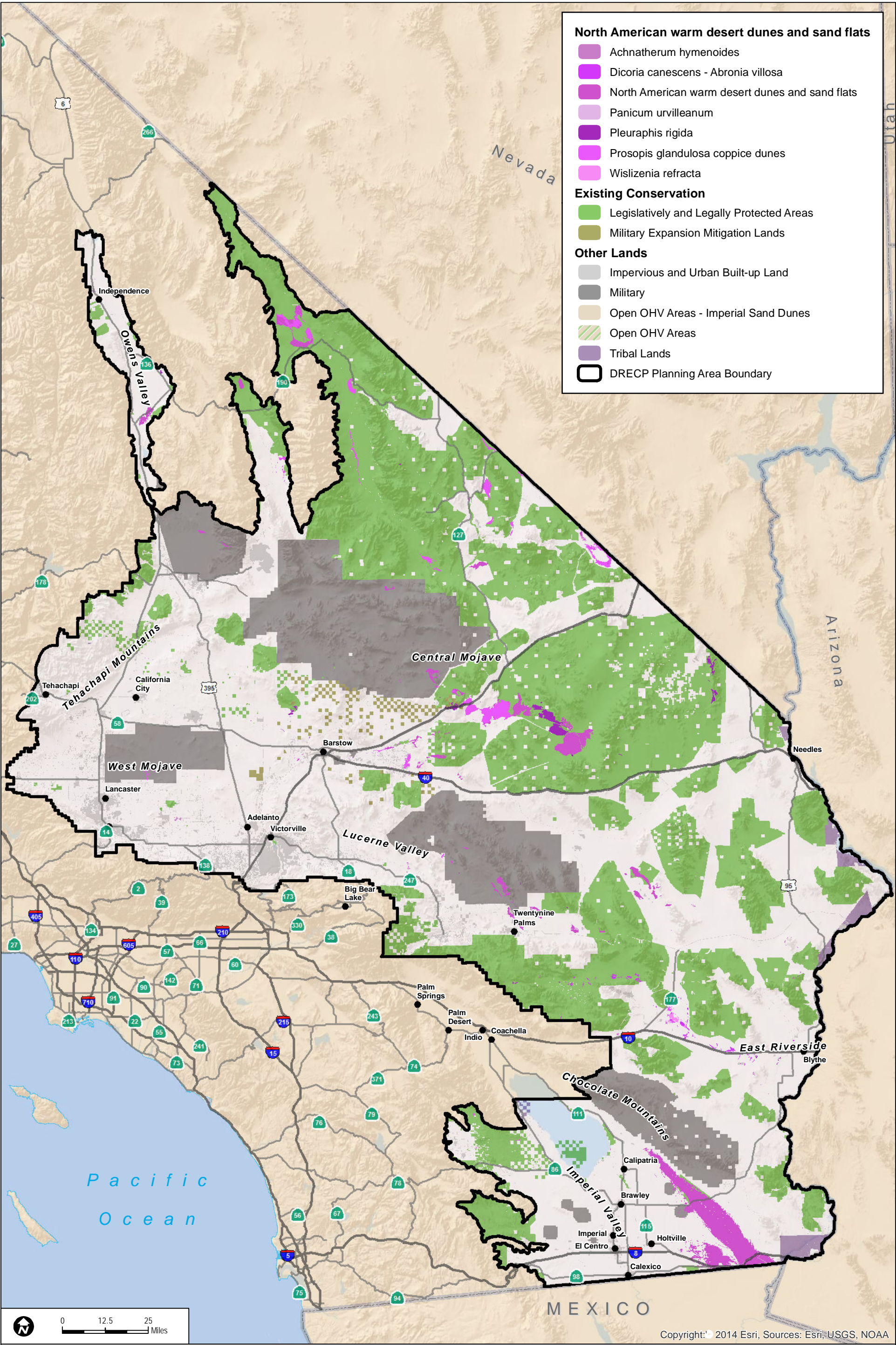


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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FIGURE C-19
Southern Great Basin Semi-Desert Grassland (SGSG)

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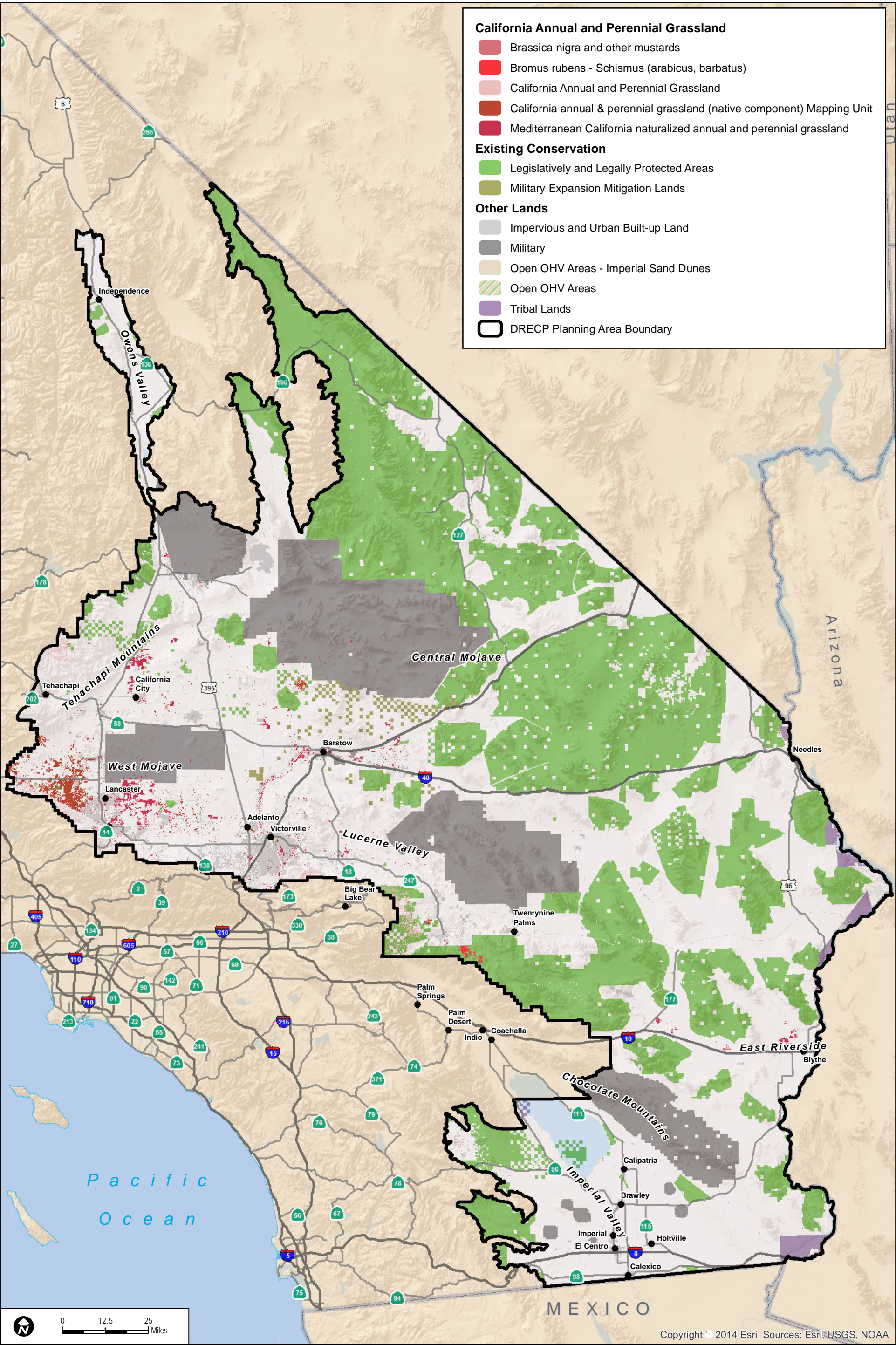


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

Copyright: 2014 Esri, Sources: Esri, USGS, NOAA

FIGURE C-20
North American Warm Desert Dunes and Sand Flats (SAND)

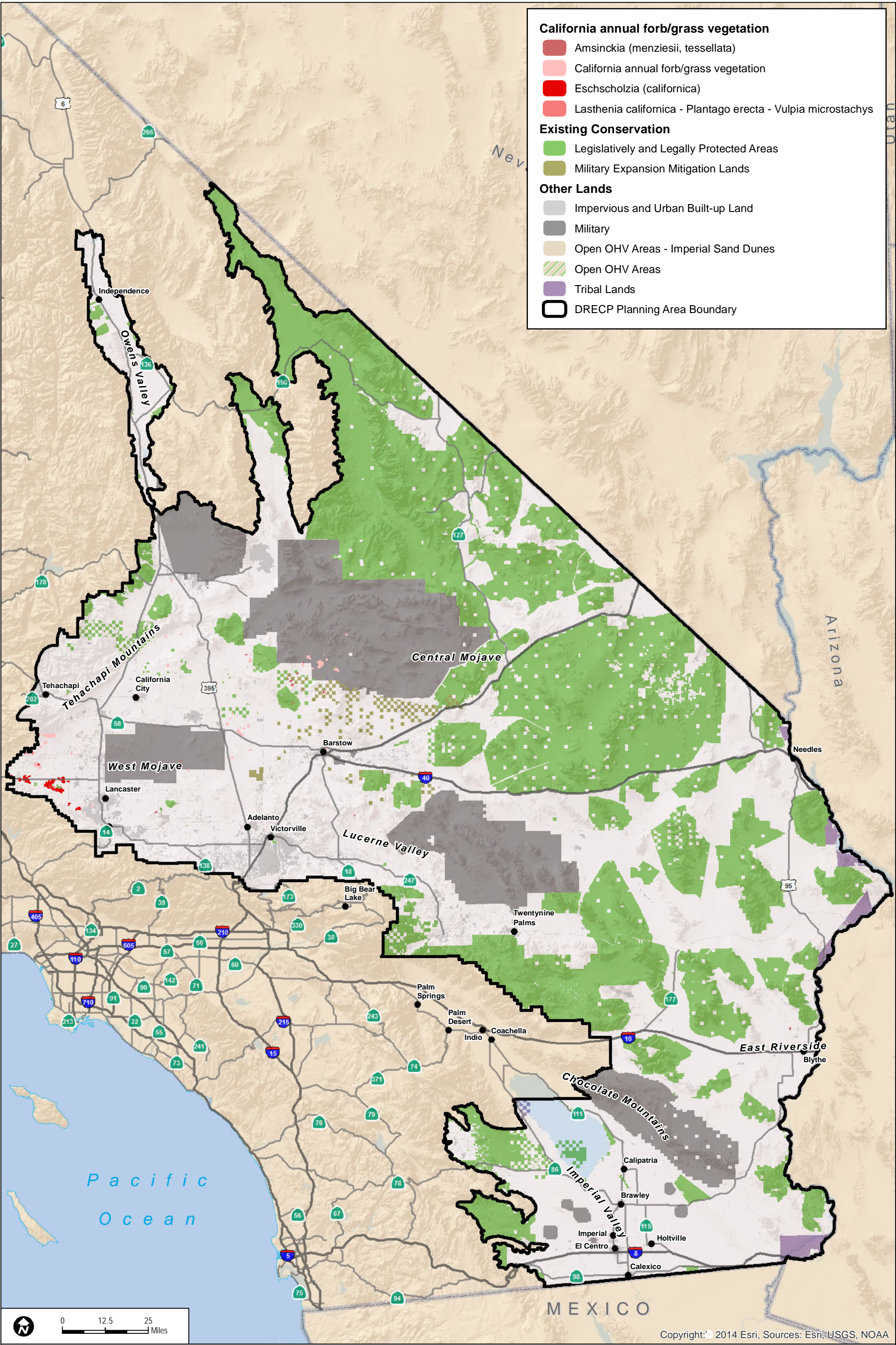
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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE C-21
California Annual and Perennial Grassland (CAPG)

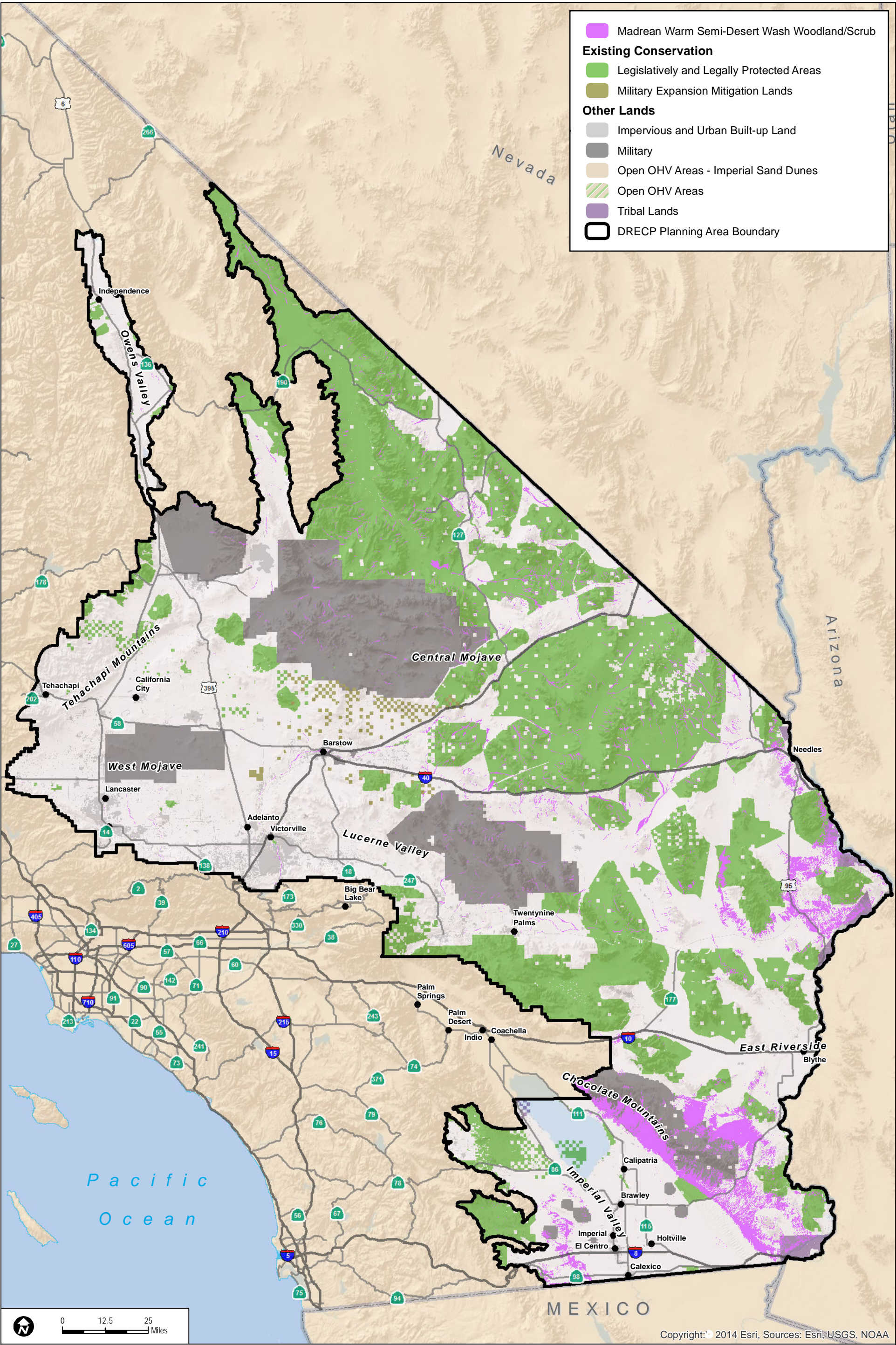
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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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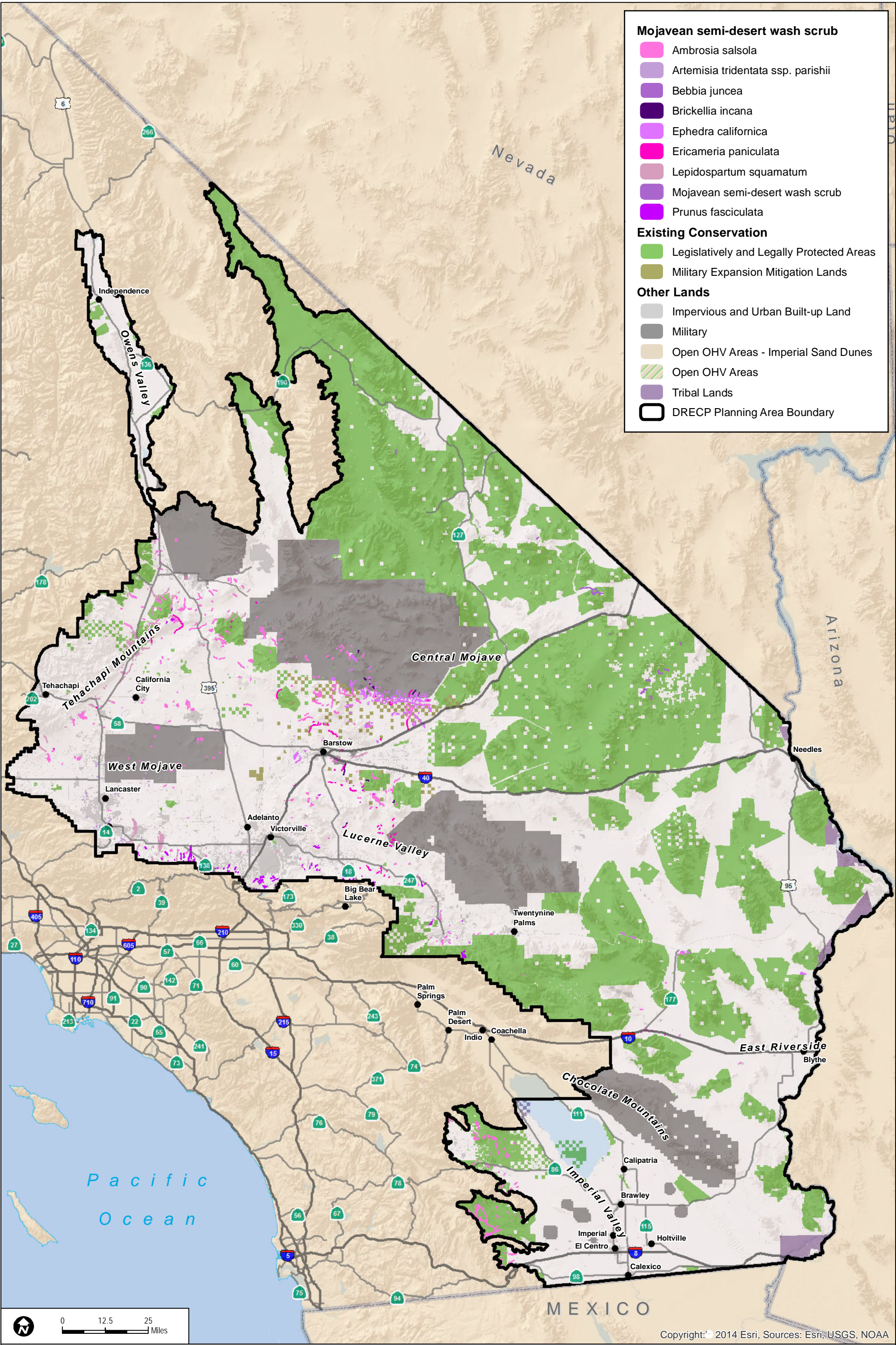
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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE C-23
Madrean warm semi-desert wash woodland/scrub (MAWW)

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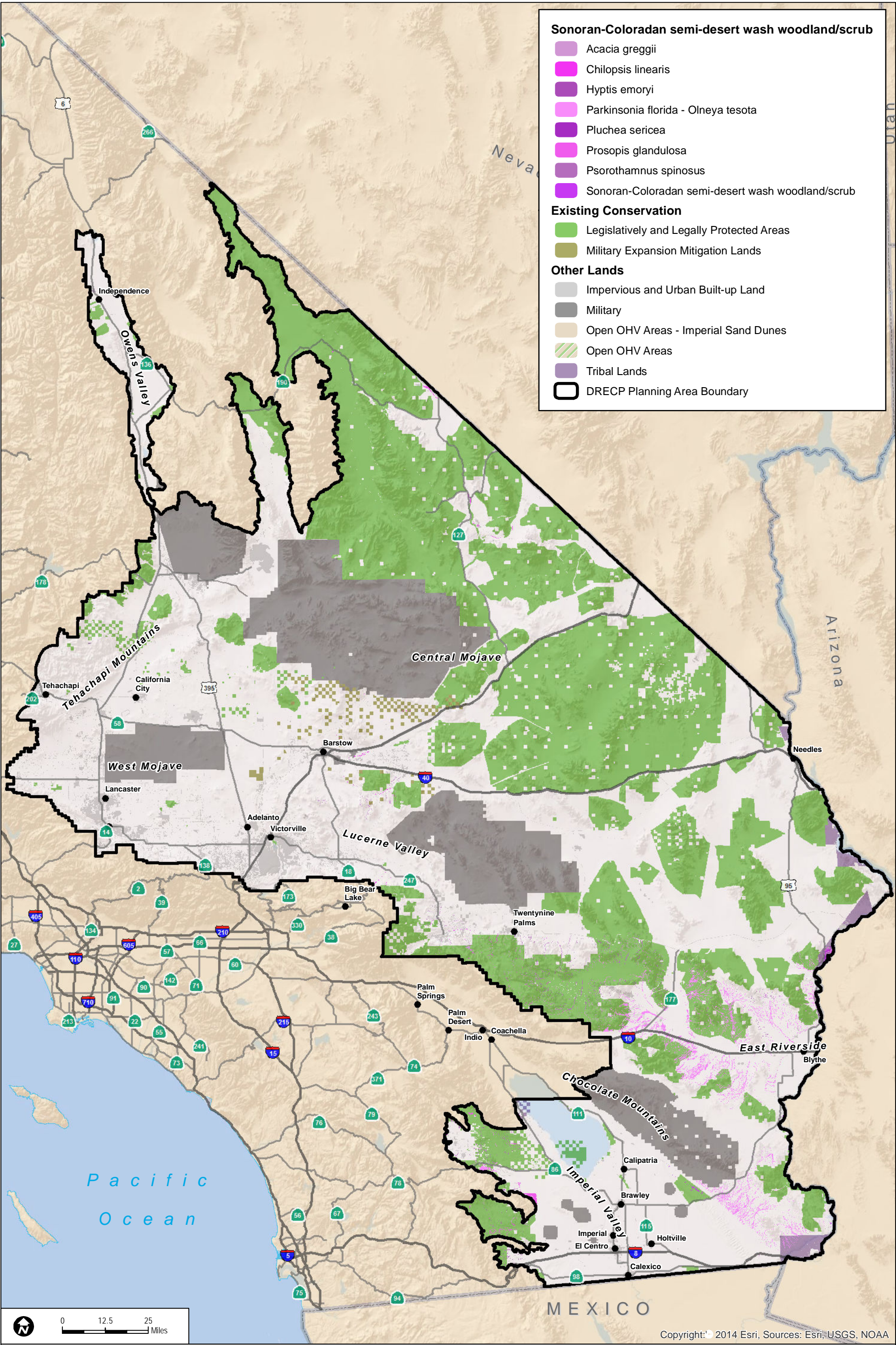


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE C-24

Mojavean semi-desert wash scrub (MOWS)

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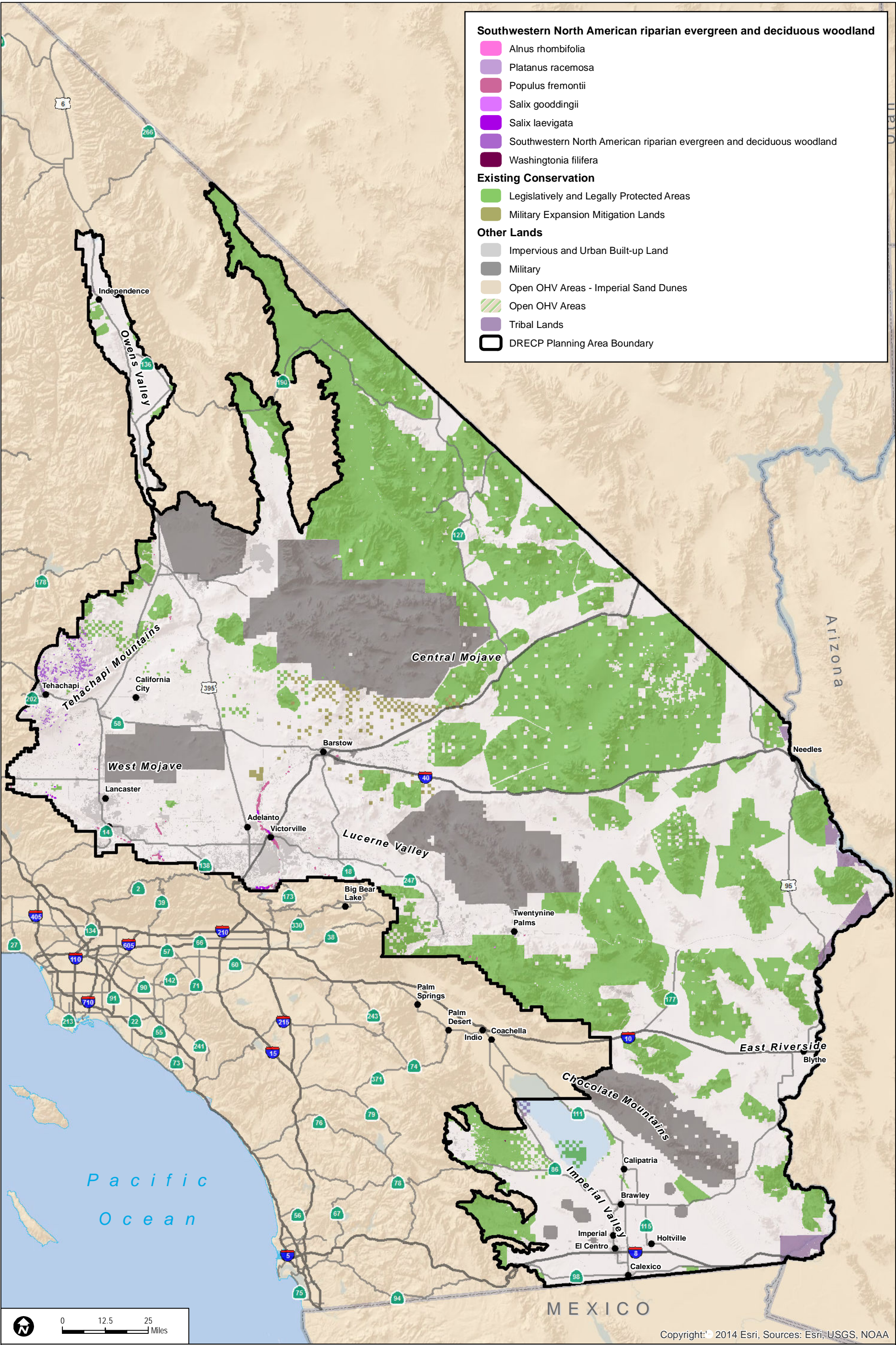


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

Copyright: 2014 Esri, Sources: Esri, USGS, NOAA

FIGURE C-25
Sonoran-Coloradan semi-desert wash woodland/scrub (SCOWS)

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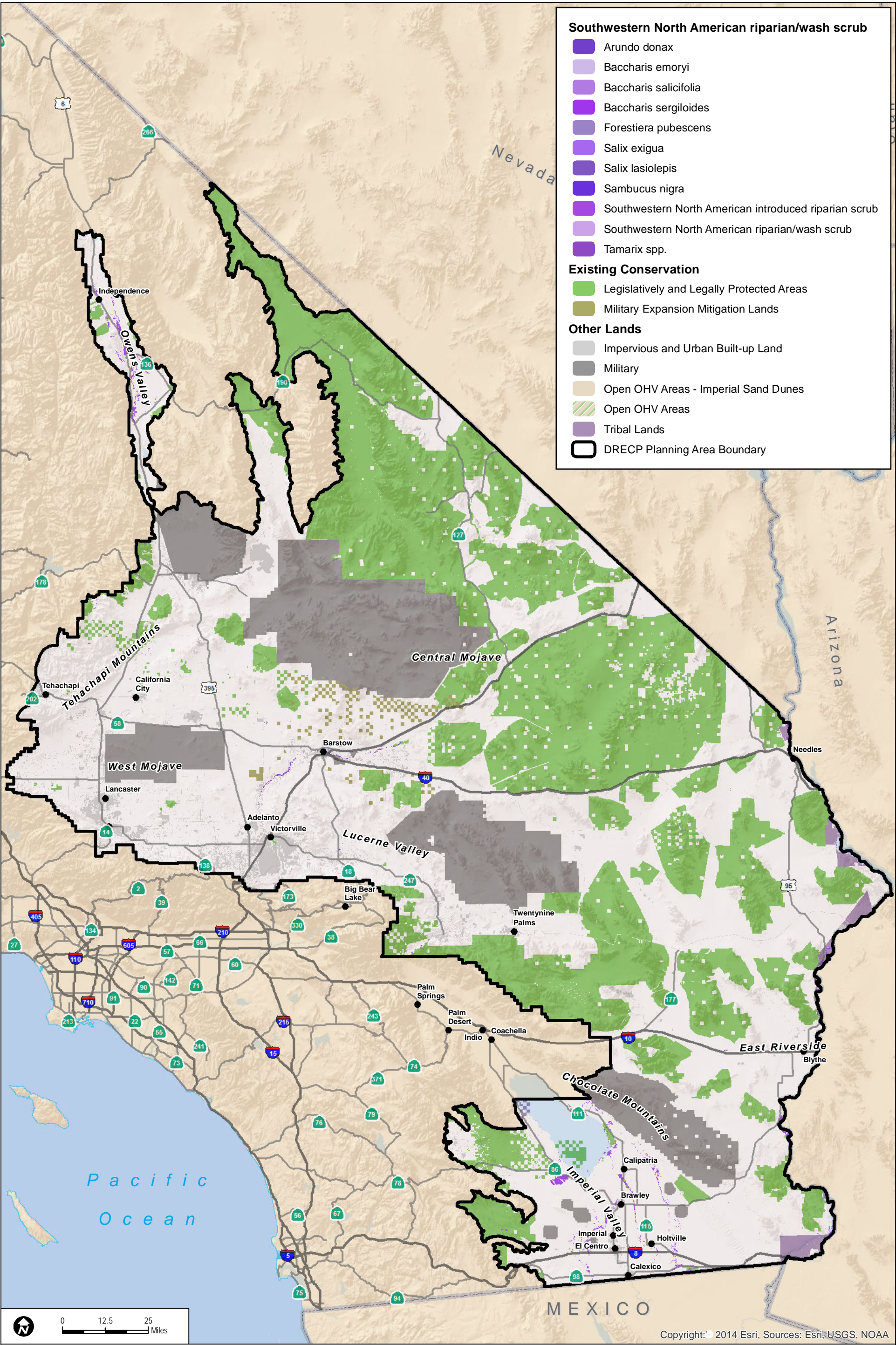


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE C-26

Southwestern North American riparian evergreen and deciduous woodland (SNRED)

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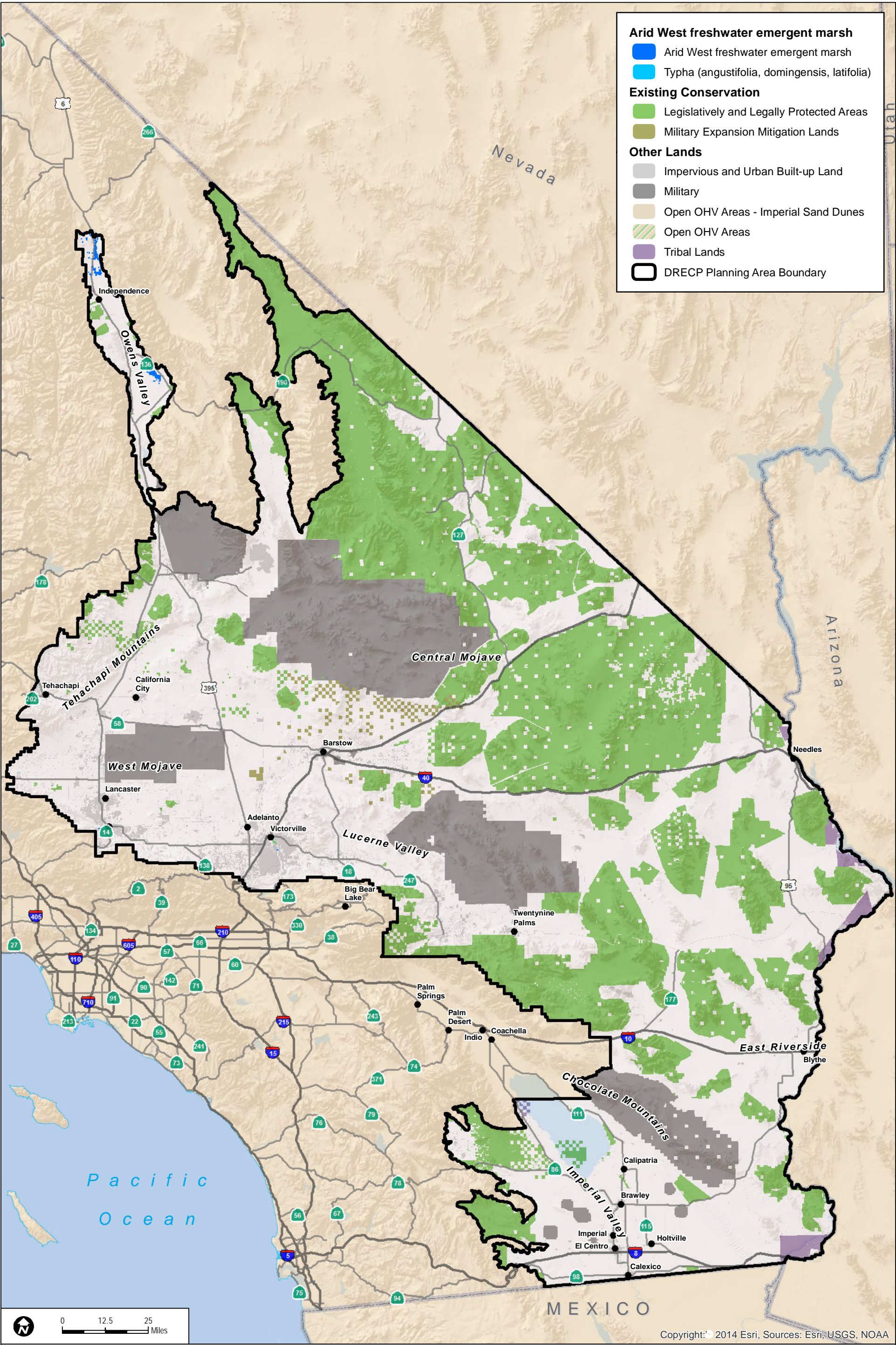


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

Copyright: 2014 Esri, Sources: Esri, USGS, NOAA

FIGURE C-27
Southwestern North American riparian wash scrub (SNAW)

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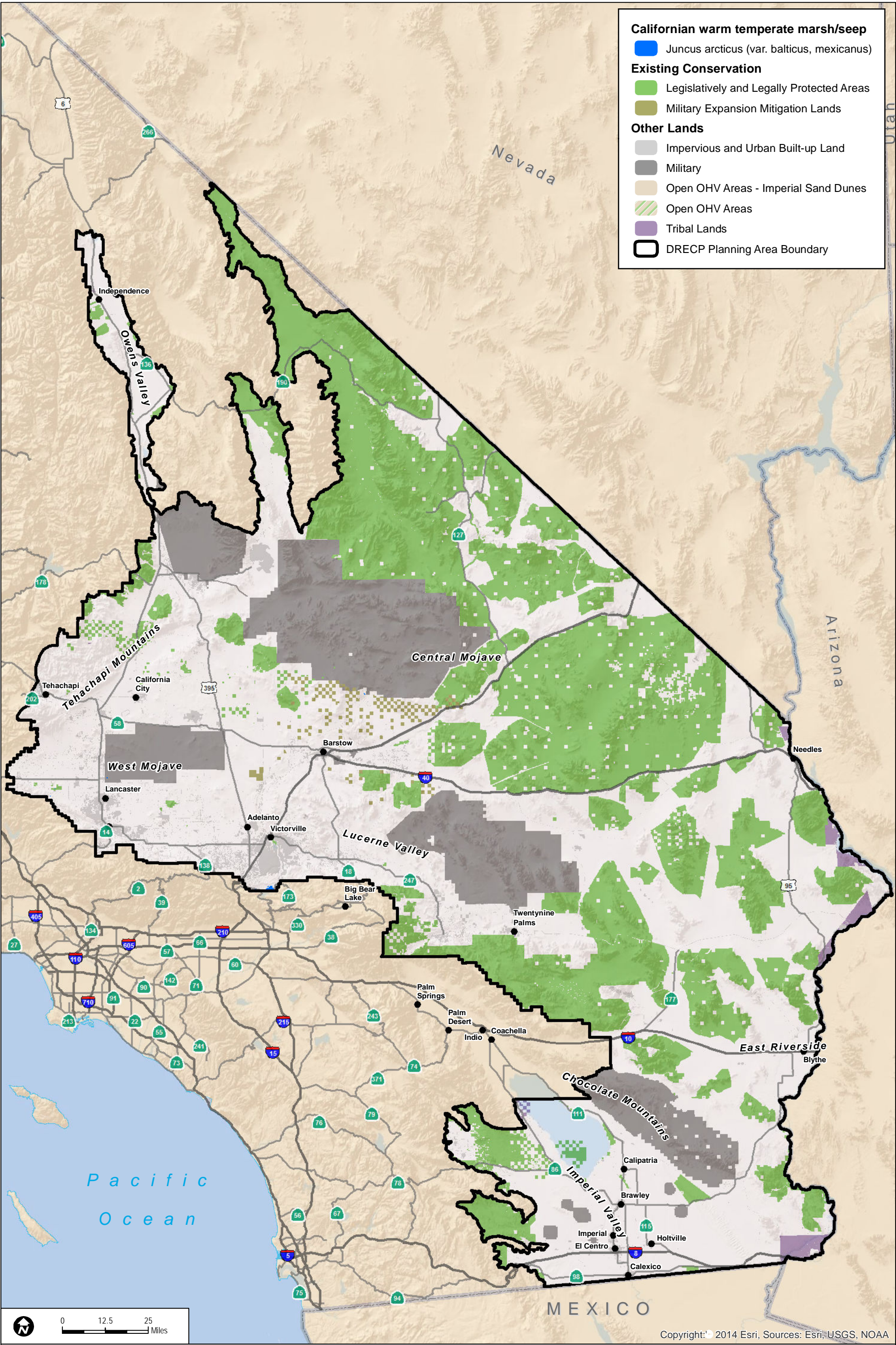
Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

Copyright: 2014 Esri, Sources: Esri, USGS, NOAA

FIGURE C-28

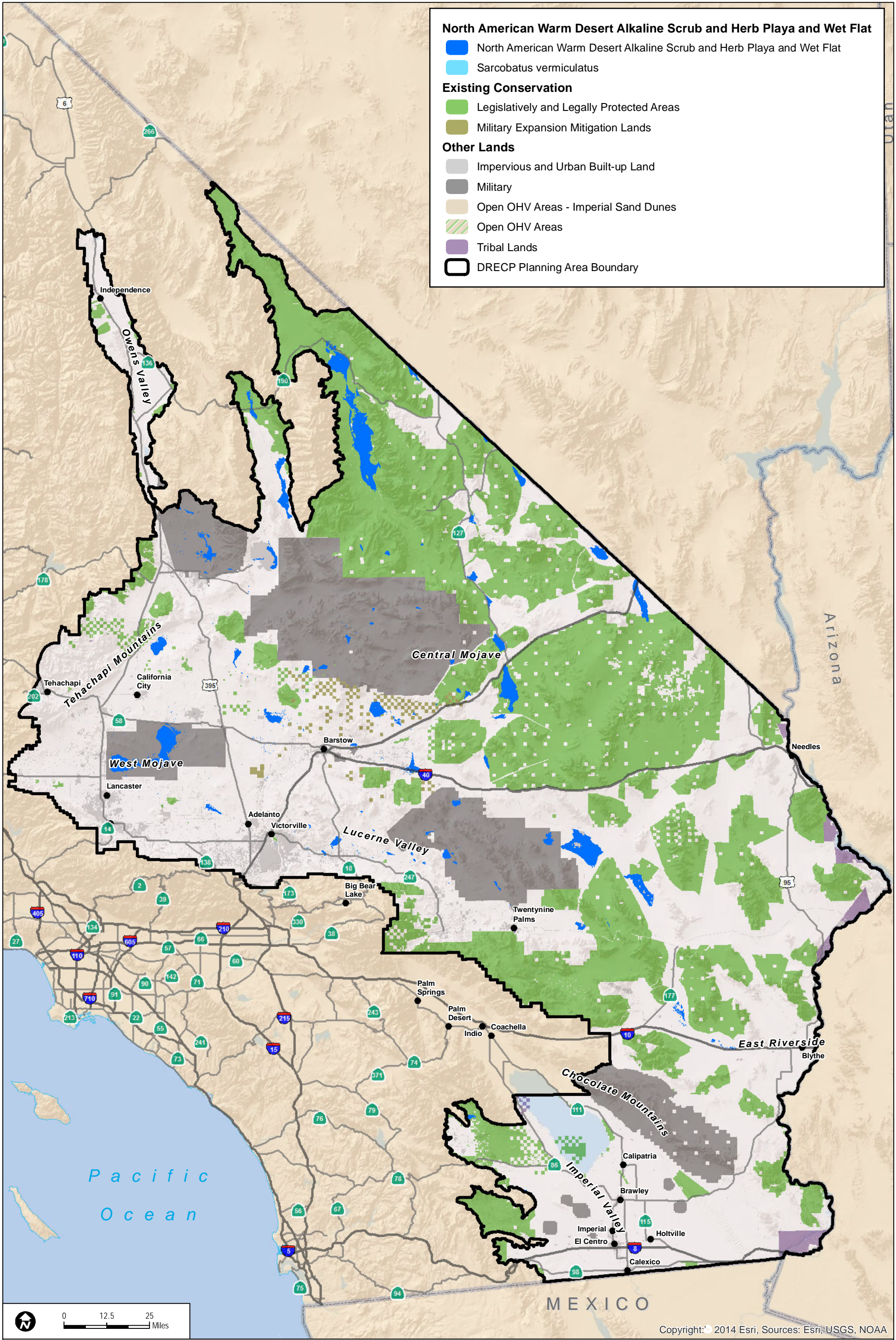
Arid west freshwater emergent marsh (AWEM)

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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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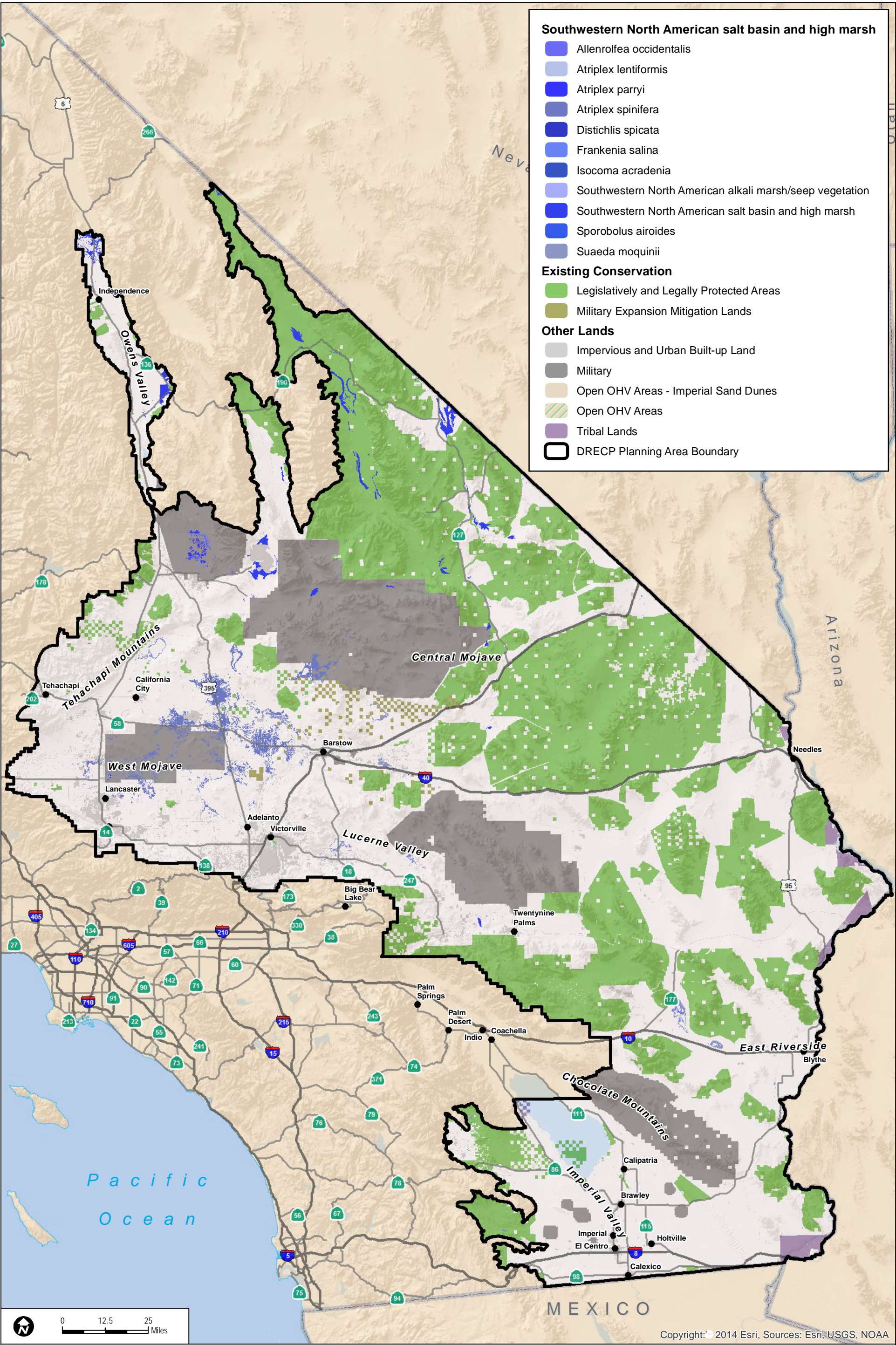


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE C-30

North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat (ALSH)

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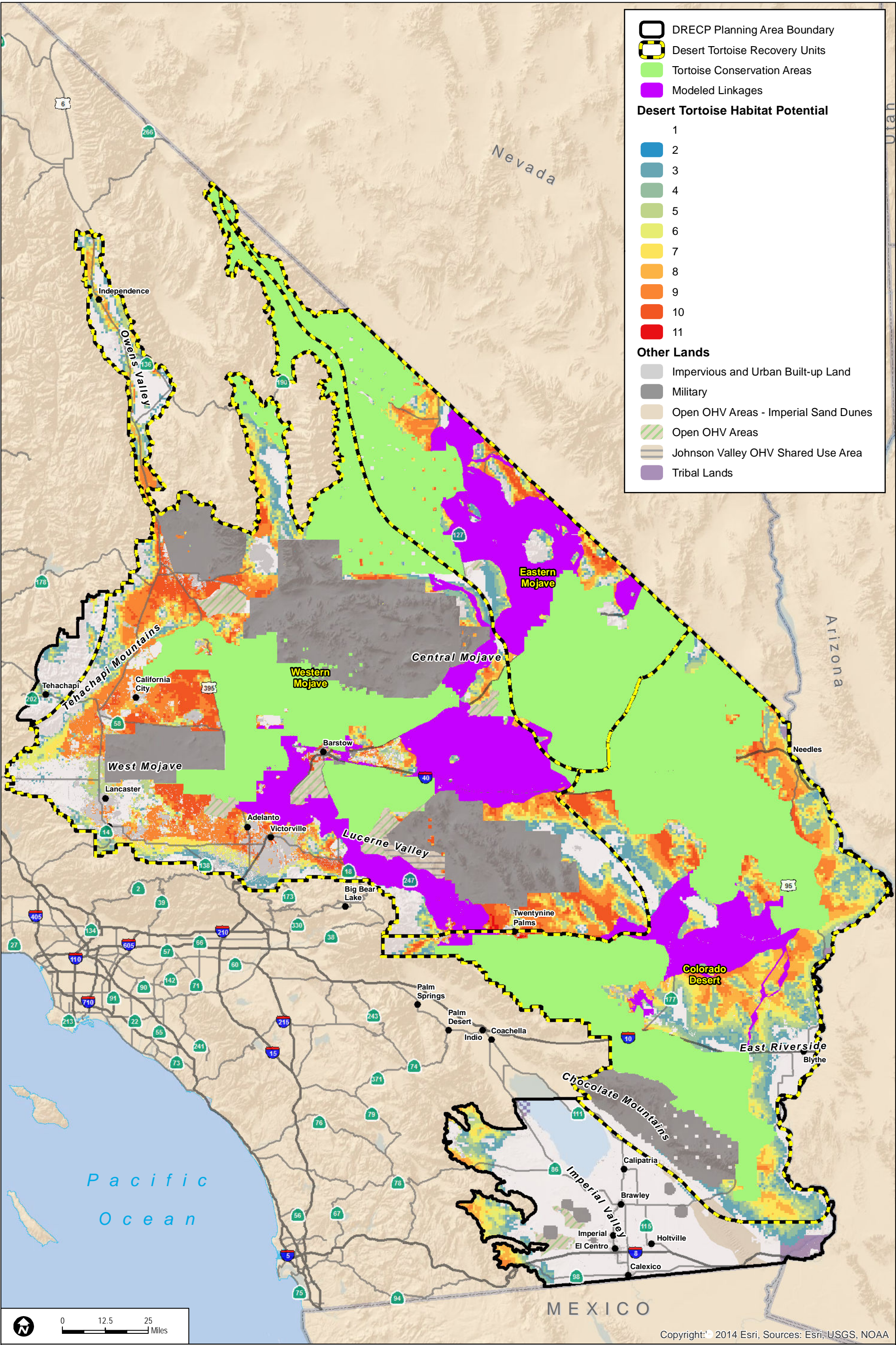


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

Copyright: 2014 Esri, Sources: Esri, USGS, NOAA

FIGURE C-31
Southwestern North American Salt Basin and High Marsh (SOMA)

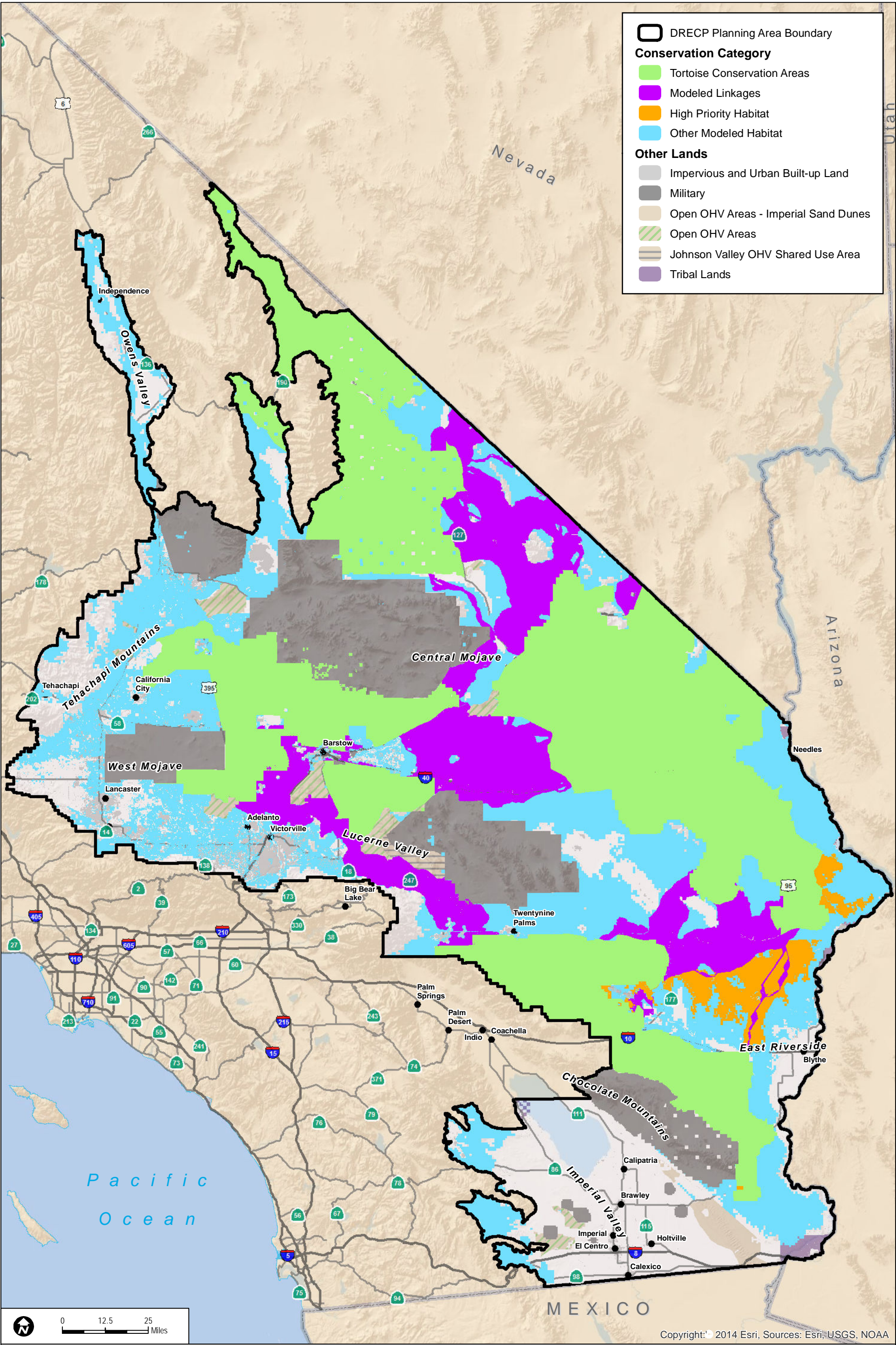
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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013); USGS (2013)

Copyright: 2014 Esri, Sources: Esri, USGS, NOAA

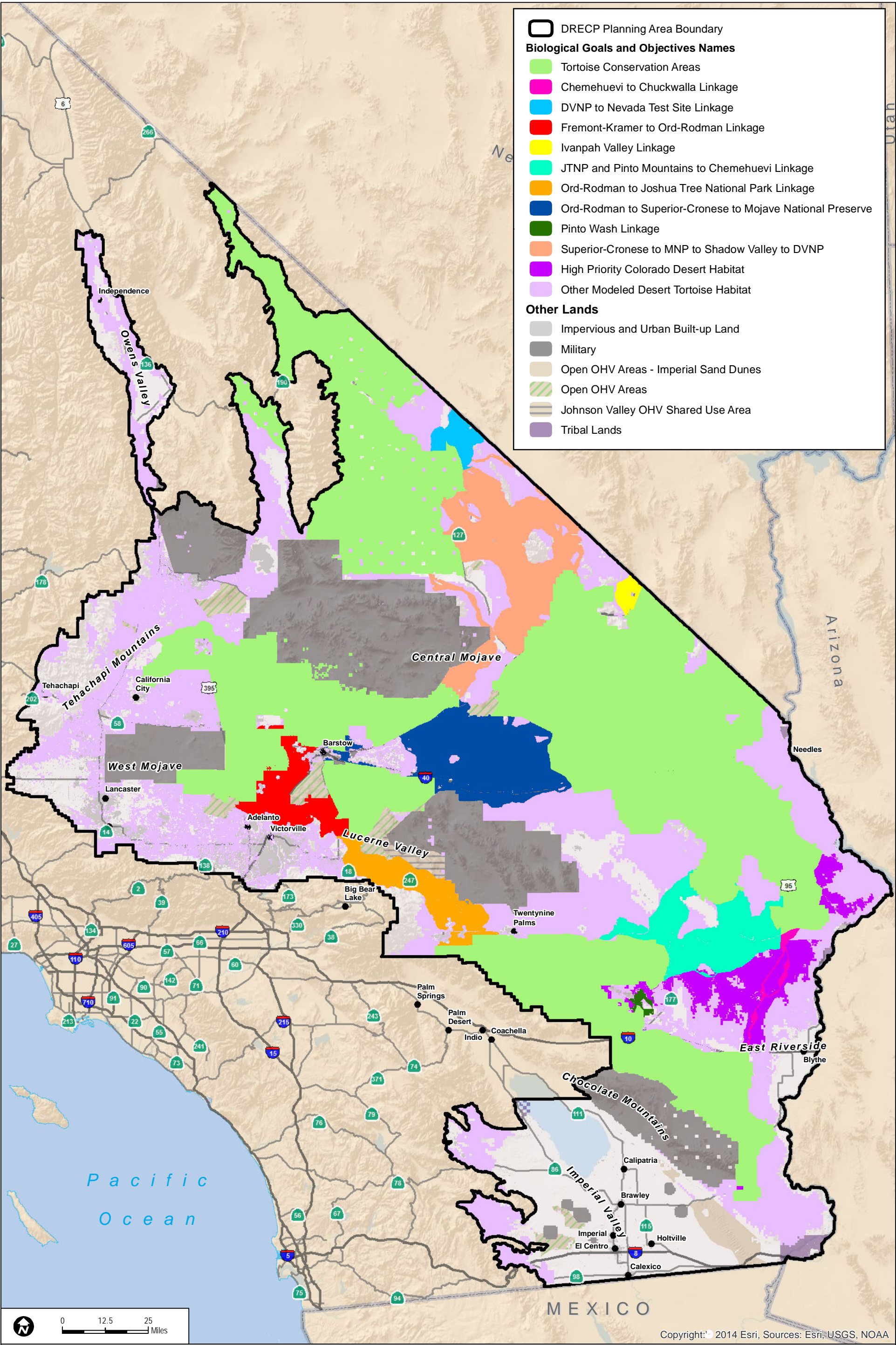
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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE C-33
Desert Tortoise Conservation Areas

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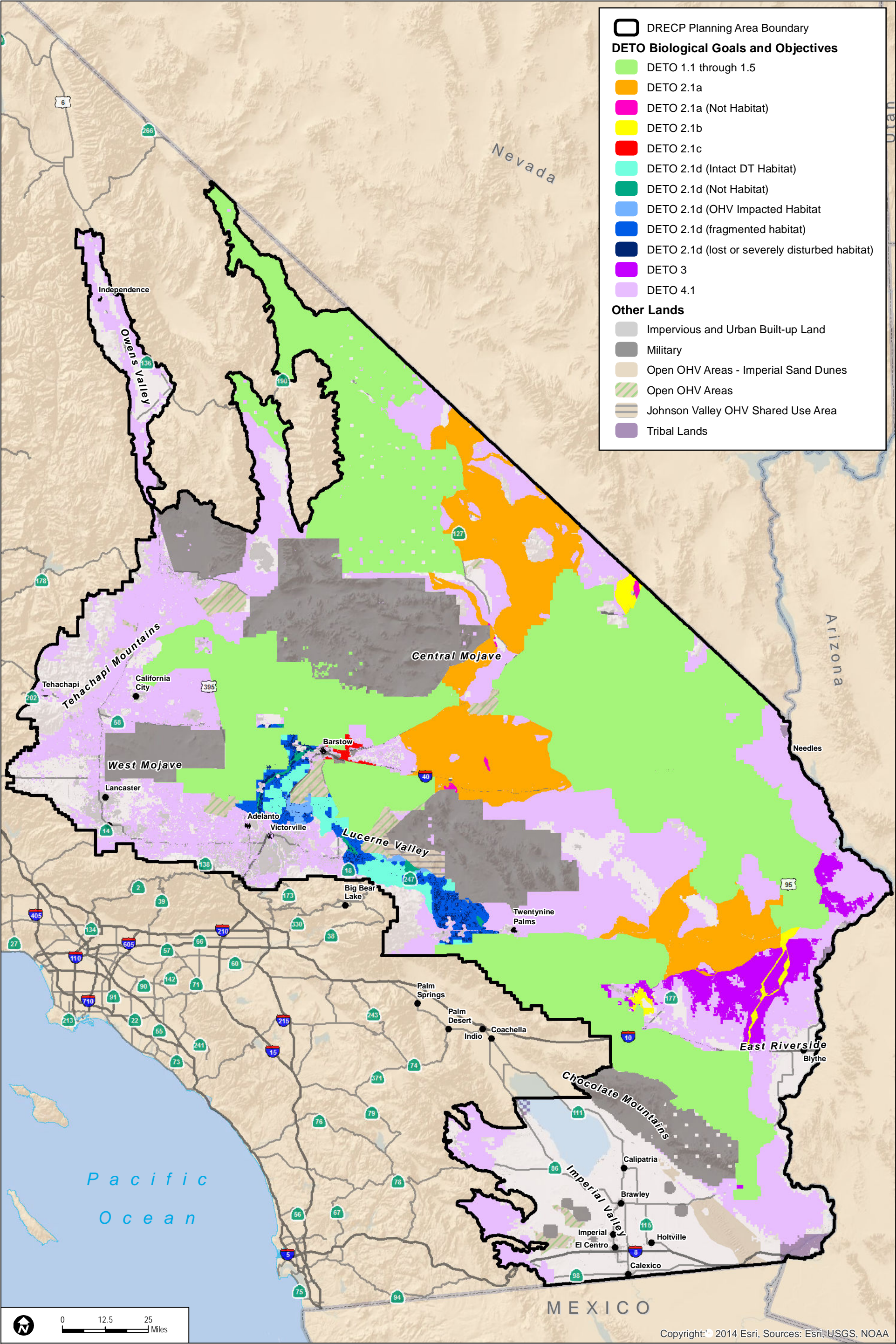


Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

Copyright: 2014 Esri, Sources: Esri, USGS, NOAA

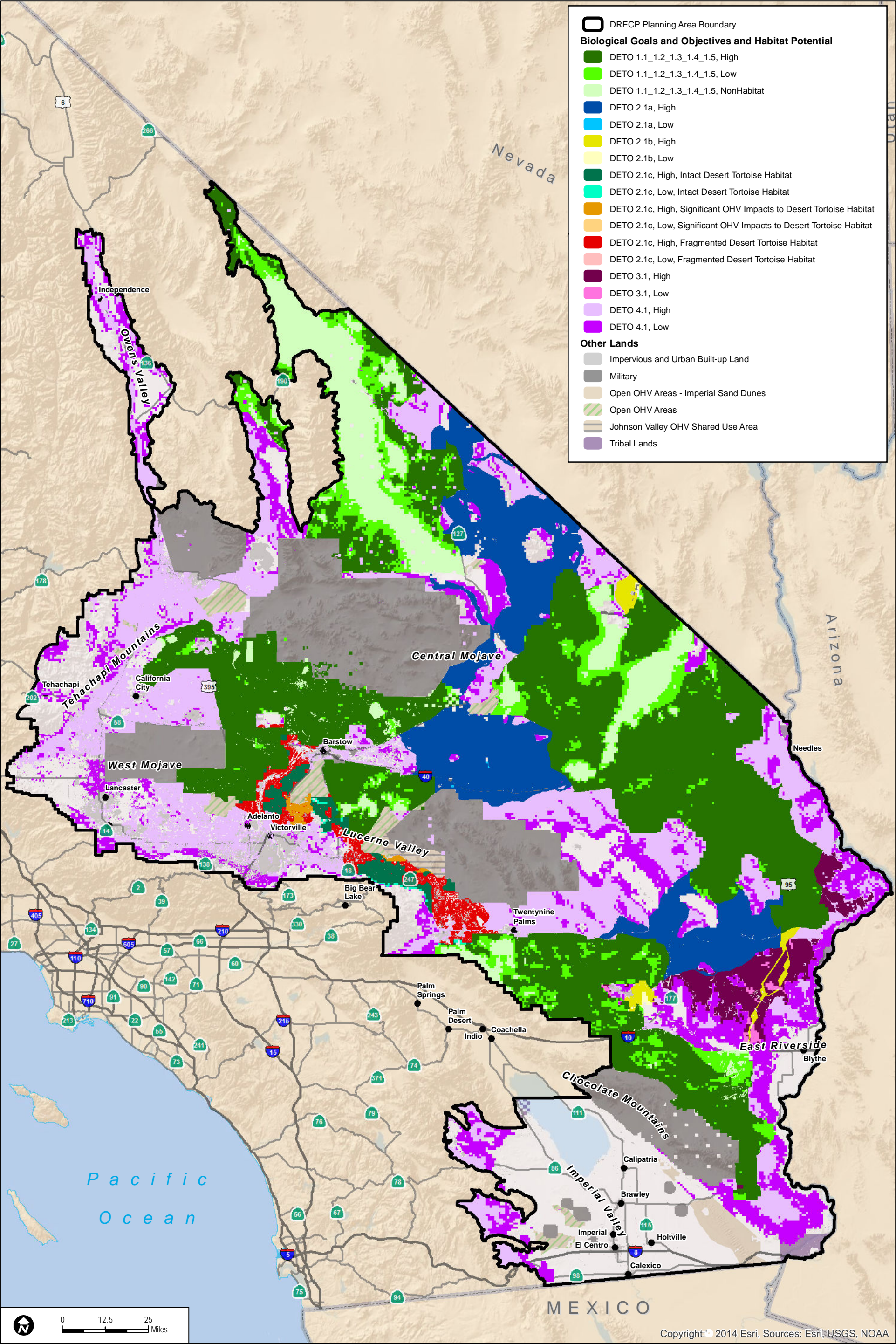
FIGURE C-34
Desert Tortoise Biological Goals and Objectives Names

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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

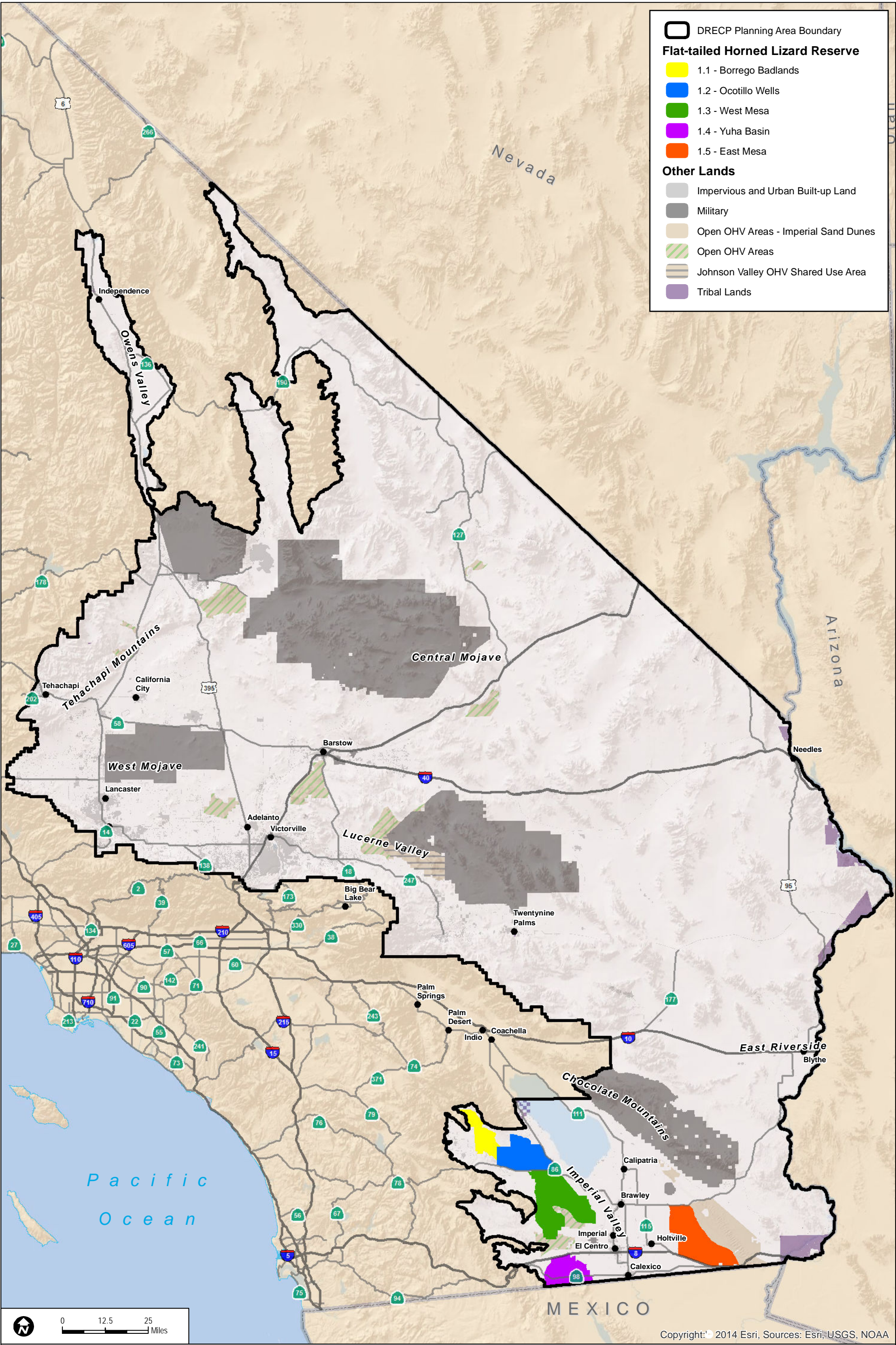
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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE C-36
Desert Tortoise Biological Goals and Objectives and Habitat Potential

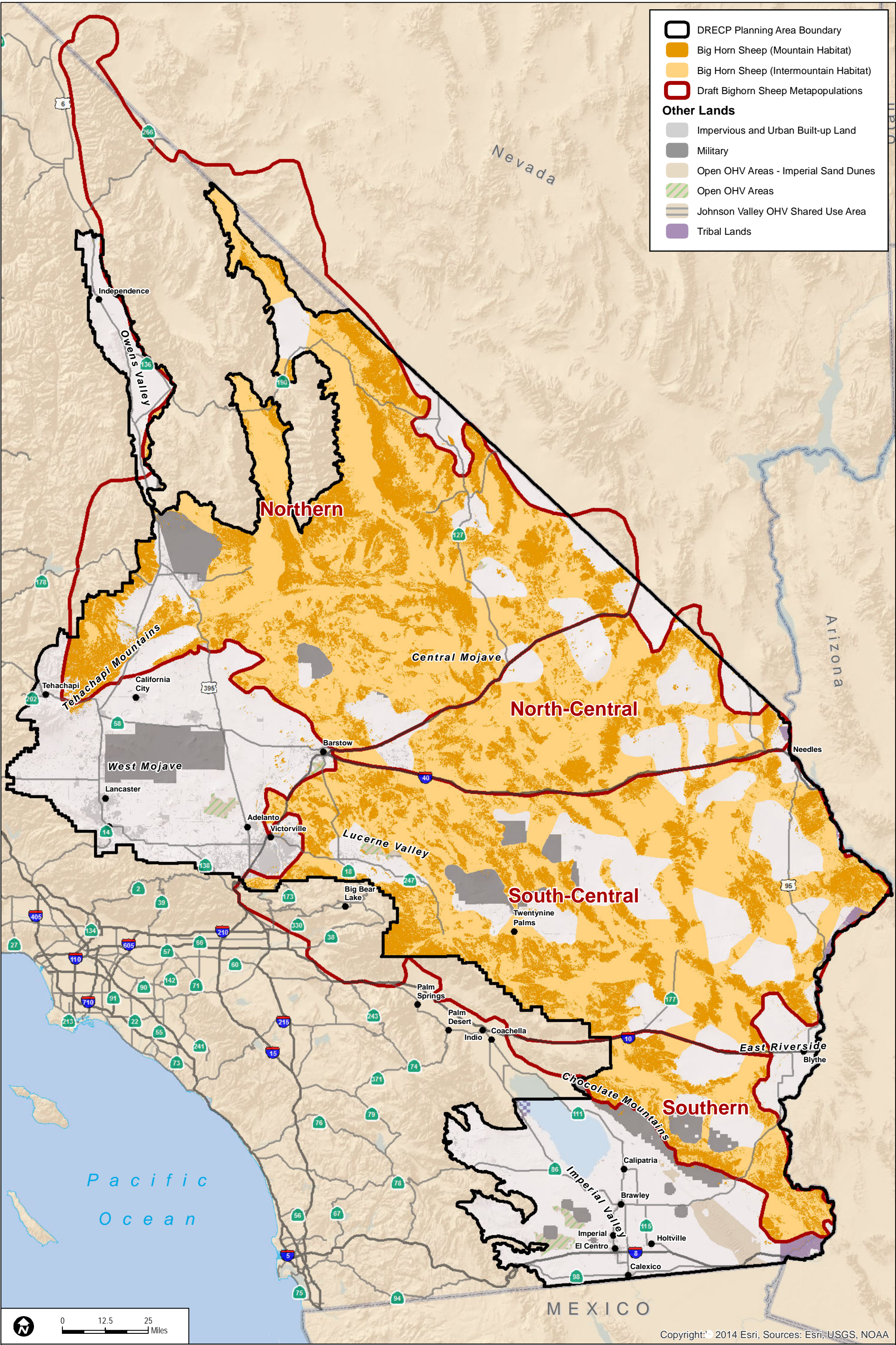
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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

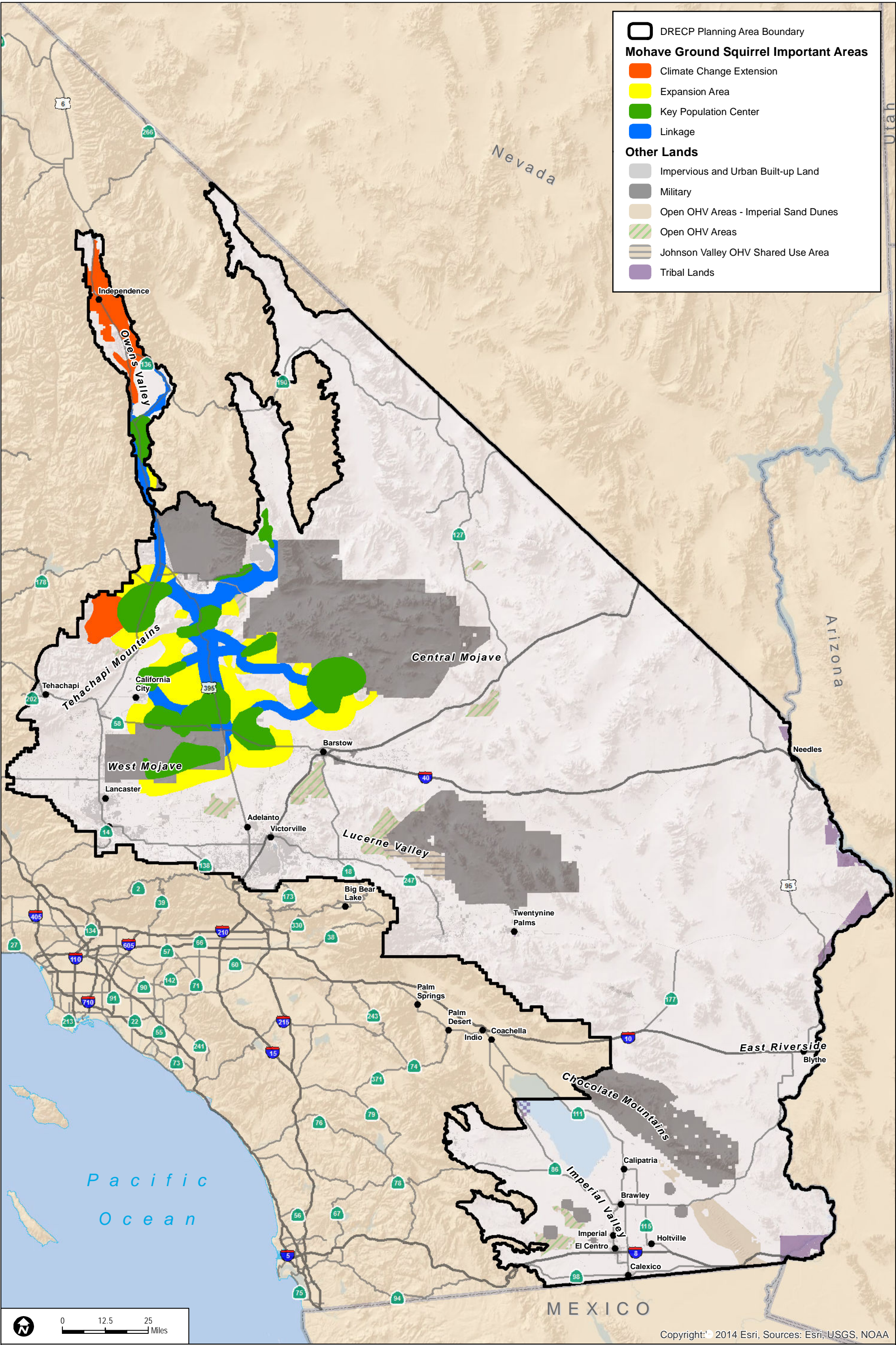
FIGURE C-37
Flat-tailed Horned Lizard Reserve

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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

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C.4 Sources Cited and/or Additional Information Used in Developing the Biological Goals and Objectives

The BGOs were developed using the best available information for landscape features and processes, natural communities, and Covered Species. The DRECP *Baseline Biology Report* (Appendix Q) and the DRECP environmental setting (Chapter III.7, Biological Resources) were key sources for developing the BGOs, including the vegetation mapping, species profiles, and the current species distribution models. Additional information and metadata for the mapping and species distribution models is available through the DRECP portal. The following provides resource-specific sources cited within the BGOs and additional information used in the development of the DRECP BGOs. See the species profiles within the Baseline Biology Report for a full list of sources.

C.4.1 Sources Cited and/or Additional Information for the Natural Community Biological Goals and Objectives

Desert Scrub Natural Communities

Intermountain Dry Shrubland and Grassland (IDSG)

For the purposes of this plan, the IDSG natural community is comprised of a variety of scrub and grassland types, all of which are members of the IDSS, MGUT, or SGSG communities. The IDSG natural community was used for portions of the Plan Area that did not have finer scale mapping and relied on the older and less differentiated map sources such as the MDEP and the GAP08. IDSG includes the IDSS, MGUT, or SGSG vegetation alliances listed below.

Intermontane deep or well-drained soil scrub (IDSS) contains the following alliances:

- *Ephedra nevadensis*
- *Ephedra viridis* (Mormon tea scrub)
- *Ericameria teretifolia*
- *Grayia spinosa*
- *Hecastocleis shockleyi*
- Intermontane deep or well-drained soil scrub
- *Krascheninnikovia lanata*
- *Lycium andersonii*
- *Lycium cooperi*

- *Purshia stansburiana (mexicana)*
- *Purshia tridentata*

The Mojave and Great Basin upper bajada and toeslope (MGUT) contains the following alliances:

- *Coleogyne ramosissima*
- *Menodora spinescens*
- *Mortonia utahensis*
- *Salazaria mexicana*
- *Yucca brevifolia*
- *Yucca schidigera*

The Southern Great Basin semi-desert grassland (SGSG) contains the following alliances:

- *Achnatherum speciosum*
- *Pleuraphis jamesii*

Dune Natural Communities

North American Warm Desert Dunes and Sand Flats (SAND)

Aeolian Processes and Natural Community Relationships

Sand dune systems consist of three geomorphic components: (1) sand source areas (typically mountain canyons, alluvial fans, fluvial washes, and/or playas), (2) Aeolian (wind) transport corridors (usually valley bottoms), and (3) depositional zones (sand sheet, hummock, dune, and ramp accumulations). Sand deposits range from Pleistocene accumulations to actively migrating “pulses” of episodically deposited hydrologic sediments that are pushed downwind and sorted by particle size to relatively stable dune and ramp accumulations at the terminus of the Aeolian corridor.

Sand sheet, hummock, dune, and ramp deposits can variously occur along the length of Aeolian transport corridors, and support floral and faunal communities coadapted to these dynamic unstable environments. While some of these communities move spatially across time as sand deposits move progressively downwind, other sand deposits and communities are fixed geographically. For example, sand deposits and natural communities can be permanently established where (1) wind velocities drop below sand transport threshold levels, such as towards the downwind end of Aeolian corridors; (2) sand accumulates along topographic barriers within the Aeolian corridor, including sand ramps on mountain slopes; or (3) accumulations are anchored by sheltering vegetation (honey mesquite coppice dunes).

Dune BGO Sources

Matti, J.C., and P.M. Cossette. 2007. *Classification of Surficial Materials, Inland Empire Region, Southern California: Conceptual and Operational Framework*. Open-File Report. U.S. Geological Survey.

Muhs, D.R., R.L. Reynolds, J. Been, and G. Skipp. 2003. "Eolian Sand Transport Pathways in the Southwestern United States: Importance of the Colorado River and Local Sources." *Quaternary International* 104: 3–18.

Southern California Areal Mapping Project. 2000. *A Proposed Classification for Surficial Geologic Materials in Southern California*. Version 1.0. Open-File Report. U.S. Geological Survey.

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Grassland Natural Communities

California Annual and Perennial Grassland (CAPG)

For the purposes of this plan, the CAPG natural community is comprised of native and non-native annual grass vegetation, as well as native perennial grasslands growing within the California Mediterranean climate, including those in the western Mojave Desert. Stands of this community agglomeration include wildflower fields (poppy, and others) and needlegrass grasslands of the western Mojave Desert, and the largely non-native annual grasslands and weed patches in the western Mojave Desert.

Due to the difficulty of correctly mapping herbaceous vegetation, this community largely subdivided into two mapping units:

- The California annual and perennial grassland (native component) mapping unit contains visible signatures of native flowers including the *Nassella cernua* (Nodding needle grass grassland) Provisional Alliance.
- The other mapped unit is the Mediterranean California naturalized annual and perennial grassland group, which contains the following semi-natural vegetation types strongly dominated by non-natives:
 - *Brassica nigra* and other mustards semi-natural stands
 - *Bromus rubens* – *Schismus* (*arabicus*, *barbatus*)

Riparian Natural Communities

Madrean Warm Semi-desert Wash Woodland/Scrub (MAWW)

For the purposes of this plan, the MAWW natural community is comprised of a variety of desert wash vegetation types, all of which are members of the Mojavean semi-desert wash scrub (MOWS) or Sonoran-Coloradan semi-desert wash woodland/scrub (SCOWS) communities. These two Natural Communities have been designated in this joint Madrean grouping for portions of the Plan Area that did not have finer scale mapping done, and relied on the older and less differentiated map sources. This Madrean grouping is therefore comprised of all of the MOWS and SCOWS vegetation alliances listed below.

Riparian BGO Sources

- BLM (Bureau of Land Management). 2006. Conservation Management Strategy for Mesquite and Acacia Woodlands in Clark County, Nevada. Las Vegas, Nevada: BLM Las Vegas Field Office. March 2006.
- BLM. 2010. *Imperial Sand Dunes Draft Recreation Area Management Plan and Draft Environmental Impact Statement*. El Centro, California: BLM El Centro Field Office. March 2010.
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Wetland Natural Communities

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Mount, J.F., J.L. Florsheim and W.B. Trowbridge. 2001. "Restoration of Dynamic Flood Plain Topography and Riparian Vegetation Establishment through Engineered Levee Breaching." Davis, California: Center for Integrated Watershed Science and Management, University of California, Davis.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation*. 2nd ed. Sacramento, California: California Native Plant Society.

Swenson, R.O., K. Whitener, and M. Eaton. "Restoring Floods to Floodplains: Riparian and Floodplain restoration at the Cosumnes River Preserve." Galt, California: The Nature Conservancy, Cosumnes River Preserve.

C.4.2 Sources and Additional Information for the Covered Species Biological Goals and Objectives

Agassiz's Desert Tortoise – *Gopherus agassizii* (DETO)

Averill-Murray, R.C., C.R. Darst, N. Strout, and M. Wong. 2013. "Conserving Population Linkages for the Mojave Desert Tortoise (*Gopherus agassizii*).*" Herpetological Conservation and Biology* 8(1): 1–15.

Nussear, K.E., T.C. Esque, R.D. Inman, L. Gass, K.A. Thomas, C.S.A. Wallace, J.B. Blainey, D.M. Miller, and R.H. Webb. 2009. "Modeling Habitat of the Desert Tortoise (*Gopherus agassizii*) in the Mojave and Parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona." U.S. Geological Survey Open-File Report 2009-1102.

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U.S. Fish and Wildlife Service. 2012. "Connectivity of Mojave Desert Tortoise Populations." Reno, Nevada: Desert Tortoise Recovery Office.

Flat-tailed Horned Lizard – *Phrynosoma mcallii* (FTHL)

Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. *Flat-Tailed Horned Lizard Rangewide Management Strategy*, 2003 revision. Prepared by Flat-tailed Horned Lizard Working Group of Interagency Coordinating Committee. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pdfs/elcentro_pdfs.Par.83352.File.dat/FTHLStrategy03.pdf.

Mojave Fringe-toed Lizard – *Uma scoparia* (MFTL)

Cablk, M.E., and J.S. Heaton. 2002. "Mojave Fringe-Toed Lizard Surveys at the Marine Corps Air Ground Combat Center at Twentynine Palms, California and Nearby Lands Administered by the Bureau of Land Management." California: Marine Corps Air Ground Combat Center. Report M67399-00-C-0005.

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Gicklhorn, J. 2012. "Species Inventory of the Mojave Fringe-toed Lizard, *Uma scoparia*, within the BLM Needles Field Office." Prepared by Chicago Botanic Garden, Conservation & Land Management Internship Program, Bureau of Land Management, Needles Field Office. August 2012.

Griffiths, P.G., R. H. Webb, N. Lancaster, C. A. Kaehler, and S. C. Lundstrom. 2002. "Long-term Sand Supply to Coachella Valley Fringe-toed Lizard Habitat in the Northern Coachella Valley, California." U.S. Geological Survey Water-Resources Investigations Report 02-4013. Prepared in cooperation with the U.S. Fish and Wildlife Service.

Jarvis, J.M. 2009. "The Natural History of the Mojave Fringe-Toed Lizard, *Uma Scoparia*: The Northern Lineage, Amargosa River, California." Master's thesis; California State University, Fullerton.

Morafka, D.J. 2000. "Biogeography, Demographics and Potential Management of the Mojave Fringe-toed Lizard (*Uma scoparia*): A Species of Special Concern at the NTC, Fort Irwin, California, and in Proposed Acquisition Areas."

Murphy, R.W., T.L. Trèpanier, and D.J. Morafka. 2006. "Conservation Genetics, Evolution and Distinct Population Segments of the Mojave Fringe-Toed Lizard, *Uma scoparia*." *Journal of Arid Environments* 67:226–247.

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Bendire's Thrasher – *Toxostoma bendirei* (BETH)

- Penrod, K., P. Beier, E. Garding, and C. Cabañero. 2012. *A Linkage Network for the California Deserts*. Produced for the Bureau of Land Management and The Wildlands Conservancy. Produced by Science and Collaboration for Connected Wildlands, Fair Oaks, California, www.scwildlands.org, and Northern Arizona University, Flagstaff, Arizona, <http://oak.ucc.nau.edu/pb1/>.
- England, A.S., and W.F. Laudenslayer, Jr. 1989. "Review of the Status of Bendire's Thrasher in California." Wildlife Management Division Administrative Report No 89-3. Prepared for the California Department of Fish and Game.

Burrowing Owl – *Athene cunicularia* (BUOW)

- CDFG (California Department of Fish and Game). 2012. "Staff Report on Burrowing Owl Mitigation." Sacramento, California: California Department of Fish and Game. March 7, 2012. Accessed March 8, 2012. <http://www.dfg.ca.gov/wildlife/nongame/docs/BUOWStaffReport.pdf>.

Gervais, J. A., D. K. Rosenberg, and L. Comrack. 2008. "Burrowing Owl (*Athene cunicularia*)."
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Manning, J.A. 2009. *Burrowing owl population size in the Imperial Valley, California: Survey and Sampling Methodologies for Estimation*. Final report to the Imperial Irrigation District, Imperial, California. April 15, 2009. Wilkerson, R.L., and R.B. Siegel. 2010. "Assessing Changes in the Distribution and Abundance of Burrowing Owls in California, 1993-2007." *Bird Populations, A Journal of Global Avian Biogeography* 10: 1-36. Accessed February 2013. http://www.birdpop.org/DownloadDocuments/V10_001_036_BUOW.pdf.

Wilkerson, R.L., and R.B. Siegel. 2011. "Distribution and Abundance of Western Burrowing Owls (*Athene Cunicularia Hypugaea*) in Southeastern California." *The Southwestern Naturalist* 56 (3): 378-384. Accessed February 2013. http://www.birdpop.org/DownloadDocuments/Wilkerson_and_Siegel_2011.pdf.

California Black Rail – *Laterallus jamaicensis coturniculus* (CBRA)

CDFG (California Department of Fish and Game). 2006. "State and Federally Listed Endangered and Threatened Animals of California." California Natural Diversity Database. CDFG, Biogeographic Data Branch.

California Condor – *Gymnogyps californianus* (CACO)

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USFWS (U.S. Fish and Wildlife Service). 1996. *California Condor Recovery Plan*, 3rd Edition. Portland, Oregon: USFWS Region 1. April 1996. http://www.fws.gov/cno/es/CalCondor/PDF_files/USFWS-1996-Recovery-Plan.pdf.

Gila Woodpecker – *Melanerpes uropygialis* (GIWO)

Description of Suitable Habitat

Habitat within the Gila woodpecker range that includes undisturbed or partially disturbed riparian or desert woodland or desert shrub communities suitable for Gila woodpecker

occupancy and movement, determined through suitability models, detection data, scientific literature, and/or as determined by a method approved by the Wildlife Agencies (e.g., ground surveys). Examples of suitable habitat include tall softwood snags, cacti, and trees along or near washes and rivers in riparian and desert woodland, desert scrub, and semi-desert scrub communities. Dominant canopy species in suitable habitat in the Plan Area include Fremont cottonwood (*Populus fremontii*) and Goodding's willow (*Salix gooddingii*) in riparian woodlands; blue palo verde (*Cercidium floridum*) and ironwood (*Olneya tesota*) in xeric-riparian woodlands; giant saguaro (*Carnegie gigantea*) in saguaro scrub communities; and various palms, eucalyptus (*Eucalyptus* spp.), and Athel tamarisk (*Tamarix aphylla*) in human-altered environments (Edwards and Schnell 2000, as cited in McCreedy 2008).

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Mohave Ground Squirrel – *Xerospermophilus mohavensis* (MGSQ)

Terms used in the MGSQ BGOs

Corridor – Land that may not be suitable habitat for residency but is suitable for movement (does not present a movement barrier) between key population centers.

Disturbance – Graded or cleared top soil, and removed or crushed shrubs and associated grasses and forbs; an area generally denuded of vegetation, hardscaped, or otherwise a barrier to MGSQ movement or occupancy.

Habitat Model or Modeled Habitat – MGSQ habitat suitability model data prepared by the U.S. Geological Survey (USGS) for Inman et al. (2013), and the California Department of Fish and Wildlife (CDFW) Renewable Energy Program disturbance layer analysis. This definition includes any future habitat suitability model or model revision approved by the CDFW and USFWS (Wildlife Agencies).

Key population centers – Known areas of contiguous habitat with high detection rates and evidence of breeding or juvenile recruitment, including populations that have been persistent over time.

Linkage – Suitable habitat (up to 6 miles wide) that connects key population centers and/or other contiguous blocks of suitable habitat.

Suitable Habitat – Habitat within the MGSQ range that includes undisturbed or partially disturbed desert communities suitable for MGSQ occupancy and movement, determined through suitability models (predicted habitat suitability of 0.6 or higher in the USGS habitat model developed for Inman et al. 2013), and/or as determined by a method approved by the Wildlife Agencies (e.g., ground surveys and detection data). Examples of suitable habitat characteristics include medium textured gravelly soil in flat, level terrain or in an alluvial fan, with native shrubs and an understory of native forbs and grasses. Suitable habitat is commonly associated with creosote bush (*Larrea tridentata*) scrub or desert saltbush (*Atriplex* sp.) scrub communities, with the presence of burrobush (*Ambrosia dumosa*), spiny hopsage (*Grayia spinosa*), winterfat (*Krascheninnikovia lanata*), Cooper's boxthorn (*Lycium cooperi*), or Cooper's goldenbush (*Ericameria cooperi*). Suitable habitat can also include Mojave mixed woody scrub, Mojave mixed steppe, blackbush scrub, and Joshua tree (*Yucca brevifolia*) woodland communities.

Metadata for MGSQ Important Areas

Data for the MGSQ important areas (Figure C-39) originated with CDFW (formerly the California Department of Fish and Game). They were created for the purpose of defining the most important areas of suitable habitat to focus on for conservation of the Mohave ground squirrel (MGSQ) within the DRECP boundary. Habitat on Department of Defense Land and outside of the DRECP boundary was excluded from the analysis.

The MGSQ Important Areas data set combined detection data Leitner (2008 and 2013), disturbance data, topography, and suitable habitat modeled by USGS for Inman et al. (2013) (USGS model), in order to identify areas of high priority for the conservation of the MGSQ.

A disturbance model was derived by combining disturbance data from the following sources:

- The Department of Conservation Farmland Mapping and Monitoring Program (FMMP) data set (used to identify vacant or disturbed lands, urban, water, or farmland). Source: Department of Conservation, downloaded September 2012.
- National Vegetation Classification System (NVCS) data, used to identify herbaceous, agricultural, developed/disturbed, and rocky or barren lands. Source: DRECP landcover dataset.
- The Nature Conservancy Disturbance Data from the Mojave Desert Ecological Assessment, accessed September 14, 2012. Source: The Nature Conservancy. Used to identify land conversion status.
- The California Department of Fish and Wildlife VegCAMP (Vegetation Classification and Mapping Program) data. Accessed September 2012. Used to identify anthropogenically disturbed areas and areas with high incidence of exotics.

These data sets were combined using ArcGIS geoprocessing to create a raster with values ranging from 0 to 8. Any area with a value of 3 or lower was classified as not disturbed for the purposes of MGSQ habitation. Note: Some areas may have been disturbed by OHV use, but MGSQ is able to adapt to OHV use, so these areas were not considered disturbed within the context of this model. Only areas disturbed relative to MGSQ use were defined as disturbed by this model.

This model was combined with the USGS model (Draft version from October 2012) in order to classify habitats as suitable or non-viable. Non-viable habitat was not included in the maps. Suitable habitat was undisturbed, based on the derived disturbance model described above, and suitability values greater than 0.7 in the USGS model. Additionally, “biogeographic islands” which were isolated geographically from connecting habitat, terrain over 5,000 feet, and habitat outside of the DRECP were manually removed.

Sources for the MGSQ BGOs

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Bakersfield Cactus – *Opuntia basilaris* var. *treleasei* (BACA)

Terms Used in the BACA BGOs

Clump – One or more individual(s) grouped together in approximately 1- to 3-meter-wide clusters, which are generally genetically identical.

Suitable Habitat – Habitat within the BACA range that includes sandy soils, sometimes with gravel, cobbles, or boulders; undisturbed or partially disturbed desert scrub, grassland, scrub oak, woodland, or riparian communities, on floodplains, ridges, bluffs, or rolling hills^{1,4} at elevations typically ranging from 140 to 260 meters². Suitable habitat in the Plan Area may be determined through suitability models, detection data, scientific literature, and/or a method approved by the Wildlife Agencies (e.g., ground surveys). Examples of suitable habitat in the Plan Area include Sierra-Tehachapi saltbush scrub (*Atriplex polycarpa*)⁴; blackbush (*Coleogyne ramosissima*) scrub; juniper (*Juniperus californica*) woodland; mixed Mojave woody scrub; creosote bush (*Larrea tridentata*) intergrade with Joshua trees (*Yucca brevifolia*) and native desert needlegrass (*Stipa speciosa*) on rolling hills; and buckwheat (*Eriogonum fasciculatum*), rabbitbrush (*Chrysothamnus* or *Ericameria* spp.), and sagebrush (*Artemisia* spp.) scrub on hills with grassland and pinyon (*Pinus monophylla*) and scrub oak (*Quercus berberidifolia*) woodland¹.

Sources for the BACA BGOs

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Mojave Monkeyflower – *Mimulus mohavensis* (MOMO)

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Parish's Daisy – *Erigeron parishii* (PADA)

See Cushenbury Buckwheat.

Triple-Ribbed Milk-Vetch – *Astragalus tricarinatus* (TRMV)

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